USAID
FROM THE AMERICAN PEOPLE

DHS WORKING PAPERS

Inequalities in Utilization of Essential Antenatal Services for Women with Disabilities:

An Analysis of the 2017-18 Pakistan Demographic and Health Survey

Waqas Hameed
Muhammad Asim

2020 No. 166

DEMOGRAPHIC AND HEALTH SURVEYS

July 2020

DHS Working Paper No. 166

Inequalities in Utilization of Essential Antenatal Services for Women with Disabilities:

An Analysis of the 2017-18 Pakistan Demographic and Health Survey

Waqas Hameed[1]
Muhammad Asim[1]

ICF
Rockville, Maryland, USA

July 2020

[1] Department of Community Health Sciences, Aga Khan University, Pakistan

Corresponding author: Waqas Hameed, Department of Community Health Sciences, Aga Khan University Hospital, National Stadium Road, Postal Code 74800, Karachi, Sindh; phone: (+92 21) 3486 4919; fax: (+92 21) 34934294, 3493-2095; email: waqas.hameed@aku.edu

Acknowledgments: The authors wish to thank Shireen Assaf as mentor and Christina Juan as a co-mentor of the 2020 DHS Fellows Program for their technical support. The authors would also like to thank Sarah Saleem from the Aga Khan University, Pakistan, and Bilal Iqbal Avan from the London School of Hygiene and Tropical Medicine, United Kingdom, for helping us conceptualize the study and providing insights on the analysis and intellectual review of the report. We are thankful to United States Agency for International Development for funding our research through the DHS Fellows Program, which is implemented by ICF. Lastly, we express our gratitude to our reviewer Courtney Allen for her valuable insights, and thanks to the editor and formatter who supported us in finalizing the report.

Editor: Diane Stoy
Document Production: Joan Wardell

This study was implemented with support from the United States Agency for International Development (USAID) through The Demographic Health Survey (DHS) Program (#720-OAA-18C-00083). The views expressed are those of the authors and do not necessarily reflect the views of USAID or the United States Government.

The DHS Program assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. For additional information about The DHS Program contact: DHS Program, ICF, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA; phone: +1 301-572-0950; fax: +1 301-572-0999; fax: +1 301-407-6501; email: reports@dhsprogram.com; Internet: www.dhsprogram.com.

Recommended citation:

Hameed, Waqas, and Muhammad Asim. 2020. *Inequalities in Utilization of Essential Antenatal Services for Women with Disabilities in Pakistan*. DHS Working Paper No. 166. Rockville, Maryland, USA: ICF.

CONTENTS

TABLES

FIGURES

ABSTRACT

Although the number of disabled women entering motherhood is growing, there is little quantitative evidence about the utilization of essential antenatal care services by women with disabilities. The aim of this study is to examine inequalities in the use of essential antenatal services between women with and without disabilities.

This study analyzed data from the Pakistan Demographic and Health Survey 2017-18 on 6,791 women (age 15-49) who had a live birth in the 5 years before the survey. Multiple logistic regression was used to test the study hypothesis.

The prevalence of any disability and any severe disability was 14.4% and 2.6%, respectively. The coverage of antenatal care did not differ by overall disability status or subgroup analysis. The only exception was found among the poorest women who had any disability and who had a 50% greater chance of receiving antenatal care compared with the non-disabled women. With utilization of essential antenatal care components, consumption of iron was lower among women with disabilities, while counseling care (advice on exclusive breastfeeding and balanced diet) was higher among women with disabilities as compared with their counterparts.

Our study did not find glaring inequalities in the utilization of antenatal care services between disabled and non-disabled women. This was true for urban versus rural residence and among the poor versus rich women. We suggest that the country's health system, to a great extent, is responsive to the needs of disabled women for antenatal services. Some measures, however, should be made to improve medication compliance among disabled women.

Key words: disability, antenatal care, inequalities, quality of care, effective coverage

1 INTRODUCTION

Background

Over a billion people across the globe have different forms of disability, with 80% living in low- and middle-income countries (LMICs) (Bickenbach 2011). Individuals with disabilities are the world's largest minority, which is constantly increasing from population growth and chronic medical conditions (WHO 2018). Disability is a general term that includes impairments, activity limitations, and restricted participation in society. There is evidence that the disabled face multiple barriers when they seek health-care and rehabilitation services due to poverty, vulnerability, and social exclusion (WHO 2005). According to the United Nations, disability is "a long-term physical, intellectual, mental, or sensory impairment, which in interaction with various barriers, may hinder a person's full and effective participation in society on an equal basis with others" (MacKay 2007). Individuals with disabilities have the same health needs as the non-disabled.

Global awareness of disability-inclusive development is increasing. The pledge of "no one is left behind" is the core agenda of Sustainable Development Goal 3 (SDG3), which seeks to ensure healthy lives and promote well-being for all people at all ages (WHO 2018). The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) reinforces the privileges of persons with disabilities to attain the highest standard of health-care services without any discrimination (MacKay 2007). However, despite global commitments, individuals with disabilities often live in poverty and experience poor health due to stigma and exclusions from employment, education, and access to health-care services (Banks, Kuper, and Polack 2017; Bright and Kuper 2018). The number of disabled women who are entering motherhood is growing (Blackford, Richardson, and Grieve 2000), although their ability to engage in a sexual relationship, marriage, caregiving, and mothering is often questioned (Frohmader and Ortoleva 2013; Walsh-Gallagher, Sinclair, and McConkey 2012; WHO and UNPFA 2009). Although women with disabilities have the same or even greater biological and social needs and legitimate rights for sexual and reproductive education and care (WHO and UNPFA 2009), they face a plethora of challenges in accessing high-quality, affordable sexual and reproductive health services when compared with women without disabilities (Banks, Kuper, and Polack 2017; Bright and Kuper 2018; Rugoho and Maphosa 2017; Lawler, Lalor, and Begley 2013). Discriminatory care deters these women from seeking maternal care from skilled professionals (Bradbury-Jones et al. 2015), which leads to adverse health outcomes (Hwang et al. 2009).

The world has made substantial progress under Millennium Development Goals (MDGs) 4 and 5 to address maternal and child health. However, the increase in overall coverage does not translate proportionally into reductions in maternal and neonatal mortality (UNICEF 2019). This is primarily due to inequalities in service coverage and the poor quality of services (Brizuela et al. 2019). Therefore, maternal and child mortality and morbidity remain a major public health concern for LMICs, particularly in South Asia (Alkema et al. 2016). Among several interventions, high quality of antenatal care (ANC) has been shown to improve maternal (Nikiema et al. 2010) and child (Kuhnt and Vollmer 2017) health outcomes. Antenatal care provides a unique opportunity for birth preparedness by promoting healthy practices among pregnant women, improving nutrition, and preparing women mentally, physically, and logistically for childbirth (Ekabua, Ekabua, and Njoku 2011). This care can reduce the maternal death rate by up to 20% (Nikiema et al. 2010). Although there has been a shift from improving the coverage of health care to improving the

quality of health care worldwide (Kruk et al. 2018), there is a dearth of literature on the quality of maternal care for women with disabilities (Thierry 1998; Morrison et al. 2014).

Women with disabilities are challenged with both the structural and procedural components of care. With structural care, evidence shows that in most LMICs, health systems for maternal care are structured to meet the needs of able-bodied women, while the needs of women with disabilities are largely ignored (Devkota et al. 2017; The Lancet Editorial, 2011). Able-bodied women can independently access a health-care facility and can utilize maternity care services more efficiently than women with disabilities. The negative attitudes and abusive behaviors of service providers have also been identified as another challenge (WHO 2018). Preliminary evidence shows that individual with disabilities and their families often endure poor communication and challenging attitudes of health-care providers (Walsh-Gallagher, Sinclair, and Mc Conkey 2012). Notably, women's experiences of maternity care vary according to the type of impairment (Homer and Hoope-Bender 2016; Redshaw et al. 2013), with women with multiple disabilities the least satisfied with the care offered to them (Redshaw et al. 2013). Deeply rooted discriminatory attitudes and practices, as well as the lack of laws and policy enforcement, continue to violate the legitimate rights of people with disabilities (Ortoleva and Lewis 2012; Lipson 2000; Prilleltensky 2003). In addition, health-care professionals may lack the knowledge and skills they need to provide care to pregnant women with disabilities (Lipson 2000). The international community has emphasized disability-inclusive health services by strengthening health systems to recognize and accommodate the needs of those with disabilities (Khasnabis et al. 2010; Krahn, Walker, and Correa-De-Araujo 2015). To improve health outcomes for all women and children, there is a need to organize and deliver services that are technically appropriate, culturally acceptable, socially sensitive, and equitably distributed to all women with and without disabilities.

Country Context

With a population of 207 million (Pakistan Bureau of Statistics 2017), Pakistan failed to achieve optimal targets to reduce maternal and child mortality that were pledged under MDGs 4 and 5 by the United Nations (Victora et al. 2016). The country has one of the highest rates of maternal mortality in the world (NIPS and Macro International 2008), and is ranked unsafe for the survival of newborns (You et al. 2015). There are stark inequalities in maternal, reproductive, and child health indicators, and the situation among women who are uneducated, belong to the poorest wealth quintile, and live in rural areas is far worse (Barros et al. 2012; NIPS 2018). The country is among the top 10 countries where health-care interventions are the most inequitable (Barros et al. 2012). Although 15% of childbearing women in Pakistan suffer from some disability (NIPS 2018), there is a dearth of literature on the challenges faced by these disabled women. High-quality ANC is essential to improve maternal and child health. Although the general coverage of ANC from a skilled professional is quite high (86.2%) in Pakistan, most often all aspects of essential antenatal care are not included in the care provided to the pregnant women (NIPS 2018; Tappis et al. 2015; Hameed and Avan 2018).

We hypothesize that the utilization of essential ANC services will be lower among women with disabilities as compared with non-disabled women, and that this may lead to undesirable, adverse health outcomes for mothers and newborns. After considering the global movement on disability-inclusive health-care services and the scarce evidence worldwide and in Pakistan, we conducted a secondary analysis of the most recent nationwide Demographic Health Survey of Pakistan (PDHS). Our purpose is to inform a better

understanding of the inequalities in the use of essential ANC services between women with and without disability, and the potential drivers of these inequalities.

Research Questions

This study attempts to answer the following research questions:

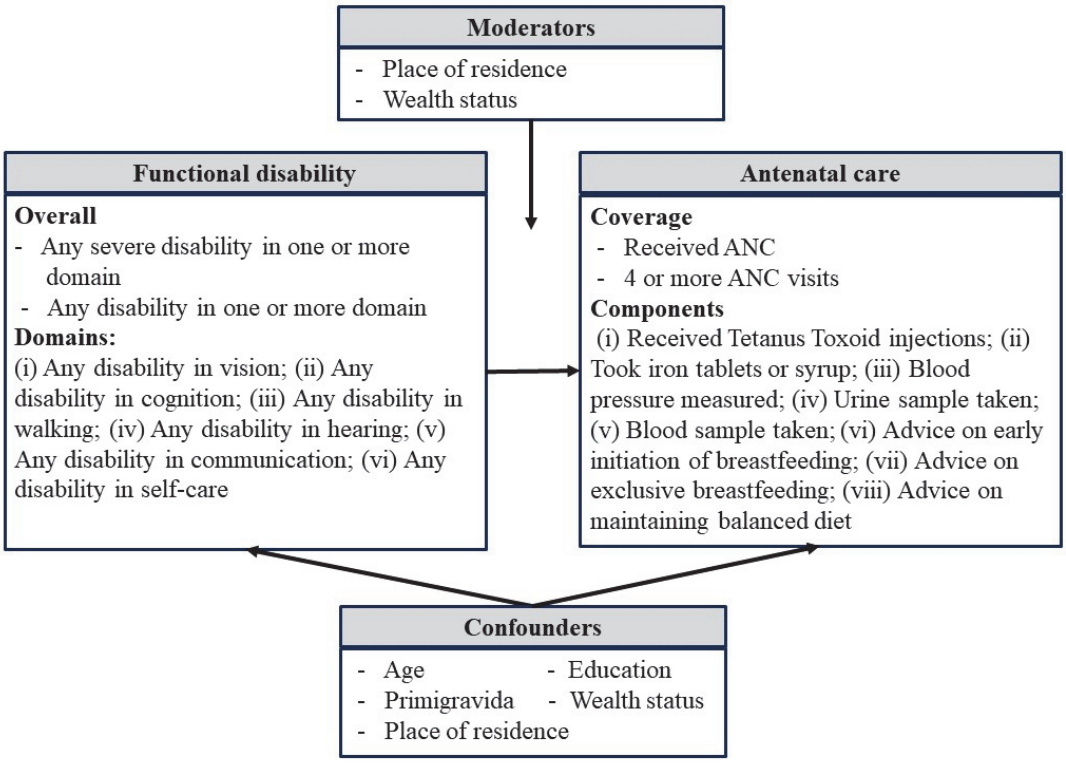
1. What are the levels of inequalities in the use of essential ANC services between women with and without disabilities, and by the type of disability?

2. How is the relationship between women's disability and the utilization of essential ANC antenatal moderated by women's wealth status and urban versus rural residence?

Conceptual Framework

Our conceptual framework reflects our objective to assess the association between functional disabilities and utilization of essential ANC services. We used multiple outcomes related to ANC such as: coverage as either a) received ANC and b) 4 or more ANC visits; and components as a) received tetanus toxoid injections, b) took iron tablets or syrup, c) had blood pressure measured, d) had urine sample taken, e) had blood sample taken, f) received advice on early initiation of breastfeeding, g) advised about exclusive breastfeeding, and h) advised about maintaining balanced diet. The measures of disability included a) any severe disability in one or more domain, and b) any disability in one or more domain such as any disability in vision, cognition, walking, hearing, communication, or self-care. These associations were also assessed by place of residence and household wealth status to test if the disability-ANC relationship differs by residence and socioeconomic status. Several pertinent covariates that were considered included age, primigravida (women having first pregnancy), education, place of residence, and wealth quintile.

Figure 1 **Conceptual framework of the association between functional disability and utilization of antenatal services**



2 DATA AND METHODS

Data

This study employed publicly available data from the most recent PDHS collected in 2017-18. With a stratified two-stage sample design, the survey obtained information from a nationally representative sample of the population of Pakistan (NIPS 2018). A total of 16 urban-rural strata for each of the eight regions were created, followed by a two-stage independent selection process. At the first stage, 580 clusters (enumeration blocks) were selected by using probability proportional to the number of households in each cluster. At the second, a fixed 28 households per cluster (16,240 in total) were selected systematically with an equal probability of selection.

Sample Derivation

A total of 15,068 ever-married women age 15-49 were interviewed in the survey. However, we reduced our sample to two levels in accordance with our study objectives and sample representativeness. At the first stage, women who resided in the Gilgit Baltistan (n=984) and Azad Jammu and Kashmir (n=1,720) regions were excluded because these two regions used a separate sampling procedure and a separate weight, and could not be combined with the other regions (NIPS 2018). At the second stage, we excluded women (n=5,561) who did not have a live birth in the 5 years before the survey. Consequently, we performed our analysis on an unweighted sample of 6,803 women (weighted sample 6,711). Information about ANC was only collected and analyzed for the most recent birth.

Variables

We created several independent (exposure) and dependent (outcome) variables for disability and utilization of ANC, respectively. The following section describes the construction of these variables.

Dependent variables

The utilization of essential ANC services for the most recent birth was the outcome variable for this study. The construction of outcome variables was guided by the World Health Organization's Integrated Management of Pregnancy and Childbirth guidelines, which detail the essential maternal health services that should be provided to women (WHO 2015). For maternal health-care-seeking, we used two measures: (i) received ANC and (ii) completed four or more ANC visits. We also created an overall measure to ascertain if the women received all the essential components of ANC (WHO 2015). These components were classified as: (I) Counseling as (a) received advice on early initiation of breastfeeding, (b) received advice on exclusive breastfeeding, and (c) received advice on maintaining a balanced diet during pregnancy; (II) Examination as (a) blood pressure measurement, (b) blood test, and (c) urine test; and (III) Treatment as (a) received two or more tetanus toxoid injections during pregnancy, and (b) took iron tablets or syrup. For the overall measure of utilization of essential components of ANC, women were coded with a '1' if they had received all eight essential ANC components and '0' otherwise. Finally, each component was included as a separate variable in the analysis.

Independent variables

A standard disability module was administered for collecting information on the six core functional domains of disability that included seeing, hearing, communication, cognition, walking, and self-care. This questionnaire about disability was originally developed by the Washington Group on Disability (Madans, Loeb, and Altman 2011). The module was based on the framework of the World Health Organization's International Classification of Functioning, Disability, and Health. The response to each question was classified as 0=no difficulty, 1=some difficulty, 2=a lot of difficulty, or 3=cannot function at all in the specified domain.

We created two separate measures for the overall status of disability, as well as for each of the six domains of functional disability. The two measures were classified as *women with any disability* and *women with severe disability*. For the overall measure of *any disability*, we created a dichotomous variable with women coded as '1' if they reported at least 'some difficulty' for one or more domains of disability, and '0' for 'no difficulty' in all six domains. Six separate measures were created for each of the six domains of disability with women coded as '1' if they reported at least 'some difficulty' in that respective domain and '0' otherwise.

In addition, we created separate measures for *women with severe disability*. For *any severe disability,* women who reported experiencing 'a lot of difficulty' or 'cannot function at all' in one or more domains of disability were given a code of '1' and '0' otherwise. Using a similar strategy, we created six separate measures of severe disability with women coded as '1' if they reported 'a lot of difficulty' or 'cannot function at all' in the respective domain and '0' otherwise.

Table 1 Key dependent and independent variables

Variable	Definition
Key dependent variables	
Received antenatal care (ANC)	Percentage of women utilized ANC from a skilled provider for the most recent pregnancy **Codes:** 0 = No ANC from skilled provider; 1 = received ANC
Four or more ANC visits	Percentage of women with four or more ANC visits for their most recent pregnancy **Codes:** 0 = Fewer than 4 visits; 1 = Four or more visits
Key independent variables	
Any disability	The variables combined women's responses to the following question: 1) Do you have any difficulty in seeing? 2) Do you have any difficulty in hearing? 3) Do you have any difficulty in communicating? 4) Do you have any difficulty in remembering or concentrating? 5) Do you have any difficulty in walking or climbing stairs? 6) Do you have any difficulty in washing all over or dressing? Possible responses: 0=no difficulty; 1=some difficulty; 2=a lot of difficulty; 3=cannot function at all **Codes:** Women were coded as '1' if they reported at least 'some difficulty' for one or more domains of disability, and '0' for 'no difficulty'
Any severe disability	The variables combined women's responses to the following question: 1) Do you have any difficulty in seeing? 2) Do you have any difficulty in hearing? 3) Do you have any difficulty in communicating? 4) Do you have any difficulty in remembering or concentrating? 5) Do you have any difficulty in walking or climbing stairs? 6) Do you have any difficulty in washing all over or dressing? Possible responses: 0=no difficulty; 1=some difficulty; 2=a lot of difficulty; 3=cannot function at all **Codes:** If the women responded 'a lot of difficulty' or 'cannot function at all' on one or more domains, they were coded as '1' otherwise '0'
Any disability in vision	Percentage of women reported at least some level of difficulty in seeing Possible responses: 0=no difficulty; 1=some difficulty; 2=a lot of difficulty; 3=cannot function at all **Codes:** If the women responded at least 'some difficulty' in vision, they were coded as '1' otherwise '0'
Any disability in cognition	Percentage of women reported at least some level of difficulty in remembering or concentrating Possible responses: 0=no difficulty; 1=some difficulty; 2=a lot of difficulty; 3=cannot function at all **Codes:** If the women responded at least 'some difficulty' in cognition, they were coded as '1' otherwise '0'
Any disability in walking	Percentage of women reported at least some level of difficulty in walking or climbing stairs Possible responses: 0=no difficulty; 1=some difficulty; 2=a lot of difficulty; 3=cannot function at all **Codes:** If the women responded at least 'some difficulty' in walking, they were coded as '1' otherwise '0'

Covariates

We included a range of covariates in our analysis that had the potential to be confounders. These included women's age in three distinct categories (age 15–24, 25–34, and 35–49), place of residence (urban/rural), women's education (no formal education/any formal education), women with first pregnancy–primigravida (yes/no), and wealth quintile (poorest, poorer, middle, richer, richest). The wealth index was computed by the DHS Program with principal component analysis (Rutstein and Johnson 2004).

Effect modifiers

To develop a deeper understanding of the relationship between the status of functional disability and ANC, we performed subgroup analysis by wealth status and place of residence, and assessed if the disability-ANC relationship differed by place of residence and socioeconomic status. The wealth quintile variable was dichotomized with women belonging to 'poorest' or 'poorer' quintiles grouped and coded as '0', and the 'richer' and richest' grouped and coded as '1'. The category of 'middle' was left blank and these women were excluded from the poor-rich subgroup analysis.

Statistical Analysis

We performed the statistical analyses in different phases: descriptive, bivariate, and multivariate analysis. Descriptive analysis was used to describe the sociodemographic characteristics of the sample by means, standard deviation, frequencies, and percentages. We estimated the prevalence (95% CIs) of overall disability and for each of the six domains of functional disability, and the percentage (95% CIs) utilization of each essential ANC component. Next, we used Pearson's chi-square to test if the prevalence of disability varied by the wealth status and place of residence.

Second, we ran the bivariate analysis with the Pearson's chi-square test to determine the crude association between utilization of ANC and the women's disability status.

In the third phase, we applied multivariate logistic regression to examine the relationship between each measure of disability and each ANC outcome in the overall sample, and then by place of residence (urban/rural) and wealth status (poor/rich). A series of models were fit separately on the full dataset, and the urban-rural and poor-rich subgroups. Finally, to ascertain the role of place of residence and wealth status as effect modifiers, we developed separate logistic regression models to test interactions of the disability measures with place of residence (urban/rural) and wealth status (poor/rich).The multivariate models also accounted for other covariates such as age, education, place of residence, primigravida, and wealth quintile to produce adjusted odds ratios. It is important to note that the prevalence of *severe disability* in the six domains was very low, as well as in the three domains of *any disability* (such as hearing, communication, and self-care). Thus, the relationship between these variables and ANC outcomes was not examined separately because of insufficient cell counts.

The data were analyzed with Stata version 16.0 (StataCorp LP, College Station, TX, US). All analyses were adjusted for the complex survey design, strata, primary sampling units (clusters), and probability sampling using individual weights. P-values of <0.05 were considered significant.

3 RESULTS

Characteristics of Study Population

Table 2 shows the background characteristics of the 6,711 women age 15-49 who had a live birth in the 5 years before the survey. Nearly two-thirds (66.5%) of the women lived in rural areas. The mean age of women was 29.6 (SD=6.4) with more than half (55.5%) between age 25-34. Approximately half (47.9%) of the women had no formal education, and one in five women (19.9%) was primigravida.

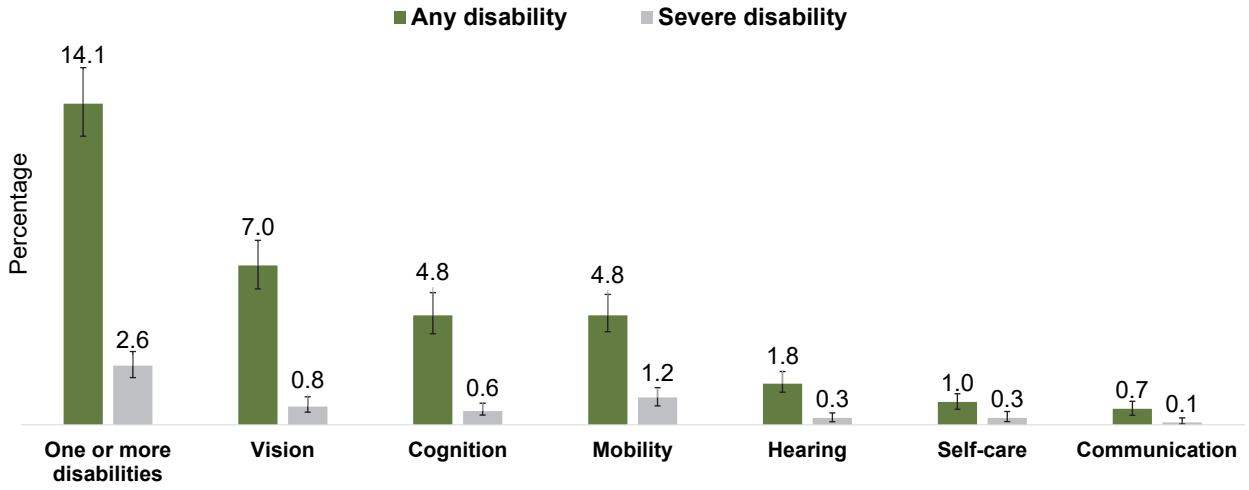
Table 2 Sociodemographic characteristics of women age 15-49 with a live birth in the 5 years before the survey

Characteristics	n	%
Place of Residence		
Urban	2,248	33.5
Rural	4,463	66.5
Women's age		
15–24	1,545	23.0
25–34	3,725	55.5
35–49	1,440	21.5
Mean (SD)	29.6	(6.4)
Education		
No formal education	3,212	47.9
Any formal education	3,499	52.1
Primigravida		
Yes	1,337	19.9
No	5,374	80.1
Total	**6,711**	**100.0**

Status of Functional Disability

Figure 2 presents the prevalence of overall functional disability and by each domain. About 14.1% (95% CI 12.7–15.7) of the women had any disability (at least some level of difficulty) in one or more domains, while 2.6% (95% CI 2.1–3.2) had any severe disability (either have a lot of difficulty or cannot function at all) in at least one of the specified domains. With any disability, the most prevalent forms of functional disabilities were vision (7.0%, 95% CI 2.1%–3.2%), walking (4.8%, 95% CI 4.1%–5.7%), and cognition (4.8%, 95% CI 4.0%–5.8%), while fewer than 1% (0.7%, 95% CI 0.4%–1.0%) reported at least some difficulty in communicating. With any severe disability, the most commonly cited domain was walking disability at 1.2% (95% CI 0.8%–1.6%). The prevalence of severe disability in other domains was less than 1%. (Please see Appendix Table 2 for actual values of 95% CI of the prevalence of disability.)

Figure 2 **Prevalence of any disability and severe functional disability among women age 15-49 years with a live birth in the 5 years before the survey, according to the domains (n=6,711)**



A comparison of functional disability between urban and rural, and poor and rich segments of the population is shown in Table 3. The prevalence of functional disability does not differ significantly according to the place of residence or wealth status of the household. The only exception was that the women who live in urban areas had significantly higher prevalence (6.1%) of walking disability as compared with women (4.2%) living in rural areas (p-value = 0.024).

Table 3 **Prevalence of functional disability among women who had a live birth in 5 years before the survey, according to wealth status and place of residence**

Characteristics	Any severe disability in one or more domains	Any disability in one or more domains	Any disability in vision	Any disability in cognition	Any disability in mobility	Number of women
Place of residence						
Urban	2.4	14.9	7.4	4.2	6.1	**2,248**
Rural	2.7	13.7	6.7	5.1	4.2	**4,463**
p-value	0.643	0.441	0.559	0.300	0.024	
Wealth Status*						
Poor	2.7	14.3	7.1	5.4	3.8	**2,743**
Rich	2.1	12.9	6.1	4.2	5.2	**2,597**
p-value	0.330	0.345	0.310	0.219	0.082	

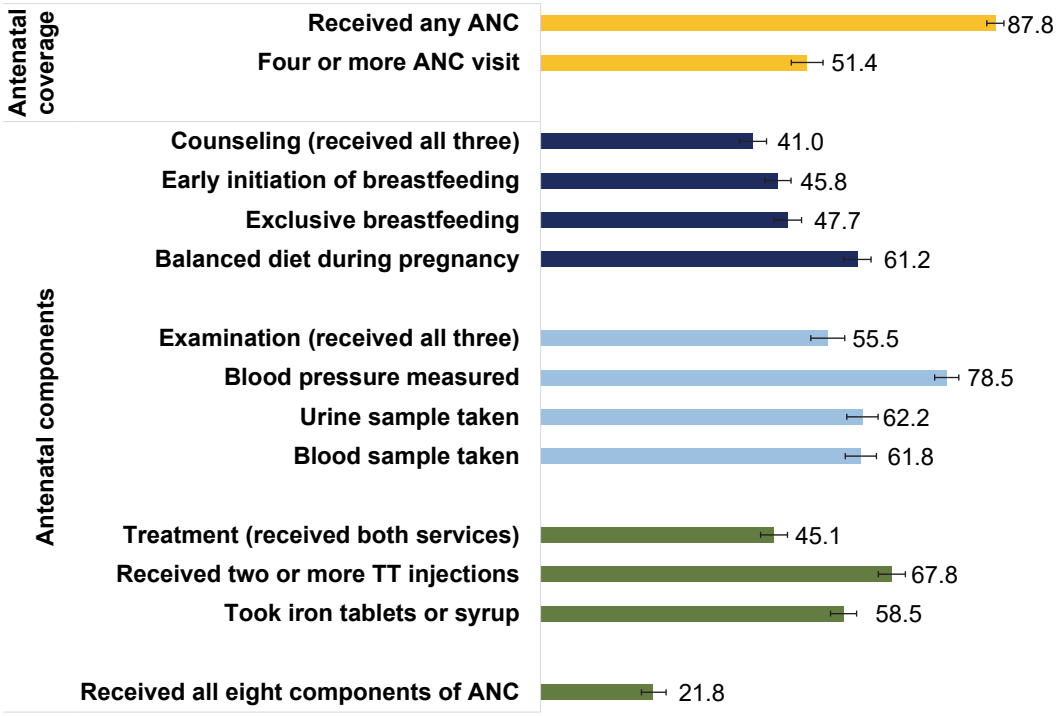
Note: Wealth status excluded women who belonged to the 'middle' quintile.

Utilization of Essential Antenatal Services

Figure 3 presents ANC coverage and the receipt of essential ANC components among the sampled women. Nearly 9 in 10 women received any ANC and half (51.4%) completed four or more ANC visits. Three in five (61.2%, 95% CI 58.5%–63.8%) women reported receiving advice on maintaining a balanced diet during pregnancy, while fewer than half received counseling on the early initiation of breastfeeding (45.8%, 95% CI 43.3%–48.3%) and exclusive breastfeeding (47.7%, 95% CI 45.1%–50.4%). About 41% (95% CI 38.4%–43.6%) received counseling on all three components. With ANC visits, approximately 78.5% (95% CI 76.1%–80.7%) had their blood pressure checked, while urine and blood samples were taken from approximately three in five women. Just over half (55.5%, 95% CI 52.2%–58.7%) of the women reported

receiving all three examination components. Fewer than half of the women (45.1%, 95% CI 42.5%– 47.7%) received the recommended doses of tetanus toxoid (TT) and consumed iron tablets or syrup during pregnancy. Only one in five women (21.8%, 95% CI 19.5%–24.2%) received all eight components of ANC during pregnancy.

Figure 3 Utilization of essential ANC components among women age 15-49 with a live birth in the 5 years before the survey



Inequalities in Utilization of Essential ANC Services between Women with and without Disability

Table 4 shows the results of the overall analysis from bivariate and multivariate logistic regression analysis in the form of crude percentages and adjusted odds ratios. Column 2 in the table shows the percentage of outcomes among women with disability and non-disabled women. These models were adjusted for the range of covariates as described in the analysis section above. The overall measures of disability showed no association with the ANC coverage indicators. However, we found a positive association between disability status and uptake of certain ANC components. Women with any severe disability in at least one domain had 1.7 times the odds (AOR=1.7, 95% CI 1.0–2.8; p-value<0.05) of taking a urine test, and 1.6 times the odds (AOR=1.6, 95% CI 1.1–2.4; p-value<0.05) of receiving advice of about exclusive breastfeeding as opposed to the non-disabled women. Similarly, as compared with non-disabled women, those women who experienced at least some level of difficulty in one or more domains had 30% (AOR=1.3, 95% CI 1.0–1.6; p-value<0.05) greater odds of receiving advice on maintaining a balanced diet during pregnancy. The only exception was that women with any severe disability in one or more domain were 40% less likely to consume iron tablets or syrup (AOR=0.6, 95% CI 0.4–1.0).

Table 4 Inequalities in the uptake of essential ANC services between women with and without disabilities

Variables	Full dataset	
	Disabled/non-disabled	AOR (95% CI)
ANC Coverage		
Received ANC		
Any severe disability in one or more domains	87.8 / 88.2	1.3 (0.7 - 2.6)
Any disability in one or more domains	87.6 / 89.2	1.3 (0.9 - 1.7)
4+ ANC visits		
Any severe disability in one or more domains	51.4 / 54.1	1.5 (0.9 - 2.4)
Any disability in one or more domains	51.7 / 46.9	1.0 (0.8 - 1.2)
Treatment		
Received two or more tetanus toxoid injections		
Any severe disability in one or more domains	69.8 / 67.8	1.3 (0.8 - 2.2)
Any disability in one or more domains	70.7 / 67.4	1.2 (1.0 - 1.5)
Took iron tablets or syrup		
Any severe disability in one or more domains	45.6 / 58.8*	0.6 (0.4 - 1.0)*
Any disability in one or more domains	54.1 / 59.2*	0.8 (0.7 - 1.0)
Examination		
Blood pressure measured		
Any severe disability in one or more domains	77.7 / 78.5	1.1 (0.7 - 1.9)
Any disability in one or more domains	78.2 / 78.5	1.0 (0.8 - 1.3)
Urine sample taken		
Any severe disability in one or more domains	68.4 / 62	1.7 (1.0 - 2.8)*
Any disability in one or more domains	61.3 / 62.3	1.0 (0.8 - 1.3)
Blood sample taken		
Any severe disability in one or more domains	54.5 / 62.0	1.0 (0.6 - 1.6)
Any disability in one or more domains	60.1 / 62.1	0.9 (0.7 - 1.2)
Counseling		
Advice on early initiation of breastfeeding		
Any severe disability in one or more domains	49.9 / 45.7	1.4 (0.9 - 2.1)
Any disability in one or more domains	47.0 / 45.6	1.1 (0.9 - 1.3)
Advice on exclusive breastfeeding		
Any severe disability in one or more domains	55.0 / 47.5	1.6 (1.1 - 2.4)*
Any disability in one or more domains	42.3 / 47.5	1.1 (0.9 - 1.4)
Advice on maintaining balanced diet during pregnancy		
Any severe disability in one or more domains	62.1 / 61.1	1.2 (0.8 - 1.9)
Any disability in one or more domains	65.6 / 60.4*	1.3 (1.0 - 1.6)*
Received all essential ANC components		
Any severe disability in one or more domains	21.8 / 21.8	1.1 (0.6 - 2.0)
Any disability in one or more domains	20.0 / 22.1	0.9 (0.7 - 1.1)

Significant criteria for p-values: *p<0.05; **p<0.01; ***p<0.001

The results of subgroup analysis from bivariate and multivariate logistic regression analysis are presented in Table 5. The p-values for the models that contain the full dataset with either the poor-rich or urban-rural interaction terms with the disability measures are also reported in the table. With the exception of the use of iron tablets, none of the interaction terms in the full model was found to be significant, which suggests that the relationship between disability and utilization of ANC does not differ by wealth status and place of residence. The p-value for the poor-rich interaction in the iron tablets model was significant (p-value=0.040), which indicated that the uptake of iron tablets by women with any severe disability is dependent on wealth status.

Columns 2, 4, 7, and 9 in the table show the percentage of outcomes among women with disability and non-disabled women along with the results of the association tests. The adjusted odds ratios (AOR) shown in the table are derived from the regression models from the subgroup analysis for poor, rich, urban, and rural women separately. These models were adjusted for the covariates as described in the analysis section

above. Most of the interactions were not significant, although there were a few significant AORs in the subgroup analysis.

Among the poor segment of the population, women with any disability in one or more domain had a significantly greater (AOR=1.5, 95% CI 1.1–2.1; p-value<0.05) odds of receiving ANC as opposed to their counterparts. Among the rich segment of population, women with any severe disability in one or more domain had almost 10 times greater odds (AOR=9.7, 95% CI 1.1–82.5; p-value<0.05) of receiving ANC as opposed to their counterparts. However, given the wide range in the confidence interval and the marginal significance of this estimate, this finding should be interpreted with caution.

In the poor-rich subgroup analysis, we observed no inequalities in the utilization of essential ANC components between women with and without disabilities. Among the poor segment of population, women with at least some level of difficulty in one or more domains had 60% (AOR=1.6, 95% CI 1.2–2.0; p-value<0.05) greater odds of receiving advice on maintaining a balanced diet during pregnancy. In contrast, women with disabilities had significantly lower odds of consuming iron tablets or syrup as compared with their counterparts both in poor (AOR=0.3, 95% CI 0.2–0.7; p-value<0.05) and rich (AOR=0.6, 95% CI 0.4–0.8; p-value<0.05) segments of population.

We observed similar findings in the urban-rural subgroup analysis. Among the rural segment of population, women who have at least some level of difficulty in one or more domains had 30% (AOR=1.3, 95% CI 1.0–1.7; p-value<0.05) greater odds of receiving advice on maintaining a balanced diet during pregnancy. In contrast, women with disabilities had significantly lower odds of consuming iron tablets or syrup as compared with their counterparts both in rural (AOR=0.5, 95% CI 0.3–0.8; p-value<0.05) and urban (AOR=0.7, 95% CI 0.5–1.0; p-value<0.05) segment of population.

Table 5 Inequalities in the uptake of essential antenatal services between women with and without disabilities, according to wealth quintile and place of residence

Variables	Wealth Status					Place of residence				
	Poor		Rich		P-value for Poor-rich difference	Urban		Rural		P-value for Urban-rural difference
	Disabled/non-disabled	AOR (95% CI)	Disabled/non-disabled	AOR (95% CI)		Disabled/non-disabled	AOR (95% CI)	Disabled/non-disabled	AOR (95% CI)	
ANC Coverage										
Received ANC										
Any severe disability in one or more domains	75.8 / 76.9	1.2 (0.6-2.8)	98.1 / 99.7	9.7 (1.1 - 82.5)*	0.105	95.8 / 97.5	2.7 (0.8-8.7)	83.8 / 83.9	1.2 (0.6-2.5)	0.246
Any disability in one or more domains	75.0 / 80.8*	1.5 (1.1-2.1)*	98.1 / 98.0	1.2 (0.4 - 3.5)	0.541	95.9 / 95.2	1.1 (0.5-2.1)	83.5 / 86.0	1.32 (1.0-1.8)	0.541
4+ ANC visits										
Any severe disability in one or more domains	28.1 / [30.2]	1.2 (0.6-2.3)	77.0 / 71.2	0.9 (0.4-1.9)	0.501	70.7 / 72.9	1.7 (0.7-3.6)	41.6 / (45.6)	1.4 (0.8-2.5)	0.809
Any disability in one or more domains	28.4 / 26.6	0.9 (0.7-1.2)	77.1 / 74.9	0.9 (0.6-1.4)	0.925	71.5 / 66.4	0.9 (0.7-1.3)	41.9 / 40.8	1.0 (0.7-1.4)	0.727
Treatment										
Received two or more tetanus toxoid injections										
Any severe disability in one or more domains	54.6 / 50.8	1.3 (0.7-2.7)	88.0 / 84.5	1.57 (0.6-3.9)	0.677	76.2 / 79.4	1.1 (0.5-2.4)	66.7 / 62.0	1.5 (0.8-2.7)	0.520
Any disability in one or more domains	54.5 / 50.3	1.2 (0.8-1.7)	87.2 / 84.2	1.34 (0.8-2.1)	0.562	80.0 / 79.2	1.3 (0.9-1.8)	65.5 / 61.5	1.2 (0.9-1.6)	0.921
Took iron tablets or syrup										
Any severe disability in one or more domains	[21.1] / 46.2**	0.3 (0.2-0.7)**	72.3 / 73.7	1.0 (0.4-2.3)	0.04*	64.0 / 66.8	1.1 (0.5-2.2)	[37.2] / 54.8**	0.5 (0.3-0.8)*	0.090
Any disability in one or more domains	43.3 / 45.8	0.9 (0.7-1.2)	64.7 / 75.0**	0.6 (0.4-0.8)**	0.116	58.6 / 68.2**	0.7 (0.50-1.0)*	51.6 / 54.7	0.9 (0.7-1.2)	0.297
Examination										
Blood pressure measured										
Any severe disability in one or more domains	61.9 / 62.3	1.09 (0.6-2.2)	91.6 / 93.7	0.9 (0.2-3.4)	0.762	89.9 / 89.4	0.8 (0.3-1.9)	74.9 / 73.0	1.3 (0.7-2.4)	0.429
Any disability in one or more domains	63.7 / 62.0	1.1 (0.8-1.5)	92.2 / 93.9	0.8 (0.4-1.5)	0.448	86.2 / 89.8	0.8 (0.5-1.2)	73.8 / 73.0	1.1 (0.8-1.4)	0.312
Urine sample taken										
Any severe disability in one or more domains	[44.3] / 40.0	1.3 (0.7-2.7)	91.7 / 85.0	2.3 (0.6-8.3)	0.458	84.5 / 79.5	1.9 (0.8-4.7)	61.1 / 53.1	1.6 (0.9-2.9)	0.767
Any disability in one or more domains	41.2 / 39.9	1.1 (0.8-1.5)	82.6 / 85.5	0.8 (0.5-1.3)	0.389	74.1 / 80.6*	0.7 (0.5-1.1)	54.2 / 53.2	1.1 (0.9-1.5)	0.140
Blood sample taken										
Any severe disability in one or more domains	[32.5] / 41.9	0.7 (0.4-1.5)	81.7 / 83.0	1.1 (0.4-2.7)	0.541	48.1 / 53.7	1.3 (0.6-2.9)	78.0 / 78.4	0.9 (0.5-1.6)	0.484
Any disability in one or more domains	42.8 / 41.4	1.1 (0.8-1.5)	81.0 / 83.2	0.9 (0.6-1.3)	0.532	52.2 / 53.7	0.84 (0.6-1.2)	74.4 / 79.0	1.0 (0.7-1.3)	0.677
Counselling										
Advice on early initiation of breastfeeding										
Any severe disability in one or more domains	{27.7} / 27.6	1.0 (0.5-2.2)	66.7 / 64.3	1.2 (0.6-2.6)	0.750	67.7 / 60.7	1.5 (0.8-2.9)	[41.8] / 38.2	1.3 (0.7-2.4)	0.618
Any disability in one or more domains	27.9 / 27.6	0.1 (0.7-1.4)	65.6 / 64.1	1.1 (0.8-1.4)	0.663	62.5 / 60.5	1.1 (0.8-1.6)	38.5 / 38.2	1.0 (0.8-1.4)	0.570
Advice on exclusive breastfeeding										
Any severe disability in one or more domains	[33.2] / 29.0	1.3 (0.6-2.5)	72.0 / 66.7	1.4 (0.6-3.2)	0.405	70.8 / 63.4	1.7 (0.8-3.3)	47.6 / 39.5	1.6 (0.9-2.7)	0.874
Any disability in one or more domains	32.7 / 28.5	1.2 (0.9-1.6)	66.2 / 66.9	0.9 (0.7-1.4)	0.405	63.0 / 63.6	1.03 (0.7-1.5)	41.8 / 39.4	1.1 (0.9-1.5)	0.770
Advice on maintaining balanced diet during pregnancy										
Any severe disability in one or more domains	41.5 / 40.3	1.1 (0.6-2.1)	76.9 / 80.4	0.9 (0.4-2.0)	0.706	80.8 / 74.7	1.9 (0.8-4.8)	53.7 / 54.3	1.0 (0.6 - 1.9)	0.347
Any disability in one or more domains	49.8 / 38.8 ***	1.6 (1.2-2.0)**	80.6 / 80.3	1.0 (0.7-1.5)	0.105	76.2 / 74.6	1.3 (0.9-1.9)	59.8 / 53.4*	1.3 (1.0 - 1.7)*	0.595
Received all essential ANC components										
Any severe disability in one or more domains	{3.3} / 7.3	0.5 (0.1-2.9)	[40.0] / 39.8	1.1 (0.5-2.3)	0.331	[32.4] / 34.5	1.1 (0.5-2.4)	[15.6] / 15.4	1.2 (0.6-2.6)	0.900
Any disability in one or more domains	5.3 / 7.6	0.7 (0.3-1.4)	36.1 / 40.3	0.8 (0.6-1.1)	0.494	31.2 / 35.0	0.9 (0.6-1.2)	13.9 / 15.6	0.9 (0.6-1.3)	0.973

Figures in square brackets are based on 25-49 unweighted cases. Figures in curly brackets indicates that a figure is based on fewer than 25 unweighted cases.
Significant criteria for p-values: *p<0.05; **p<0.01; ***p<0.001

Following a similar pattern, the tables in Appendix 1 show the results of receiving any ANC, four or more ANC, and an additional analysis of the different measures of type of disability and each of the eight ANC components. In the overall dataset, women with any walking disability had 30% (AOR=0.7, 95% CI 0.5–0.9; p value<0.05) lower odds of receiving iron tablets and syrup as compared with women with no disabilities. In subgroup analysis for rural areas, women with any disability in vision also had 30% (AOR=0.7, 95% CI 0.5–1.00; p value<0.05) lower odds of receiving iron tablets and syrup as compared with the non-disabled women. In the overall sample, women with any walking disability had 1.6 times (AOR=1.6, 95% CI 1.2–2.2; p-value<0.05) greater odds of receiving advice on maintaining a balanced diet during pregnancy as compared with women with no walking disability. A similar trend was noted among women living in rural areas (AOR=1.6, 95% CI 1.1–2.3; p-value<0.05) and women in the high-income group (AOR=1.9, 95% CI 1.1–3.7; p-value<0.05) in the subgroup analysis. Moreover, women with any disability in vision had 50% (AOR=1.5, 95% CI 1.0–1.2; p value <0.05) greater odds of receiving advice on maintaining balanced diet during pregnancy in subgroup analysis.

4 DISCUSSION

Women with disabilities have been an imperceptible population in maternity care and reproductive health. Globally, there is a dearth of empirical literature on the maternal and reproductive health needs of disabled women, particularly in LMICs. Our study is the first of its kind to examine inequalities in the utilization of essential ANC services between women with and without disabilities in Asia. This study found that a substantial proportion (14.1%) of women of childbearing age have some level of difficulty in at least one domain of disability, while 2.6% have a lot of difficulty or cannot function at all. A multi-country study conducted in Africa had reported the prevalence of functional disabilities for women age 15-39 and 40-49. Among women age 15-39, the prevalence of any severe disability was estimated to be around 0.5%–1.3% and 5.9%–7.6% for any moderate or severe disability, while among women age 40-49, the prevalence ranged from 1.2%–3.8% and 15.3%–21.9%, respectively (Mitra 2018). The prevalence of disability among women of reproductive age in Pakistan is similar to other LMICs. In contrast, studies from United States and United Kingdom reported that 12% (Brault et al. 2009) and 6.1% (Murthy et al. 2014) of women of reproductive age are disabled (any disability), respectively. This indicated that the prevalence of disability among women of childbearing age in Pakistan is relatively higher than in high-income countries. Consistent with trends in other countries (Mitra 2018), the most common forms of functional disabilities were related to vision (7.0%), walking (4.8%), and cognition (4.8%), while difficulty in communicating was the least prevalent.

We observed no clear trend of disability with wealth status. However, some studies have found that poor people are more likely to have disability due to factors such as ill health, malnourishment, unsafe work, and the inability to afford medical care that may prevent disability (Thompson 2017; Plantinga et al. 2012). We found no significant differences in the prevalence of functional disability by urban-rural residence. The only exception was the domain of walking disability, which was more commonly found in urban areas as compared with the rural areas. One study in African countries also reported varying patterns in the prevalence of urban-rural disabilities across countries (Mitra 2018). However, another recent study from the United States (US) found a significantly higher prevalence of disability in rural settings versus the urban areas (Zhao et al. 2019). Comparisons should be made with caution because these studies reported disability for either the adult (US) or the entire population (African countries), whereas our estimates are based on childbearing women.

Notably, in this study, 88% of women sought ANC but only 20% received all eight essential ANC components. This stark difference clearly highlights a critical gap in the quality of ANC in our health-care system, a gap that requires urgent interventions to improve the quality of health-care services. Health inequalities including utilization of ANC among disabled women are common across the globe (WHO 2018). However, our study could not find major inequalities in the utilization of ANC by disabled women in Pakistan. We found limited evidence of the association between functional disability and utilization of ANC services. Although we were unable to locate any comparable study, this finding is in agreement with a systematic review from LMICs that found no difference in coverage of maternal health services between women with and without disabilities (Bright and Kuper 2018). The same association has also been documented in other studies conducted in India and United Kingdom where utilization of ANC and pregnancy outcomes were not different in women with and without disability (Murthy et al. 2014; Redshaw et al. 2013).

We found that the uptake of all eight ANC components was lower among women with disability as compared with non-disabled women. These inequalities may be attributed to significant underutilization of iron tablets or syrup by women with disability. Among all the ANC components, consumption of iron tablets/syrup relies on the women's choice to take the iron rather than receiving a prescription by a service provider. This suggests that disabled women tend to struggle adhering to a provider's suggestion to take iron tablets/syrup on their own. This was suggested in another study that found lower adherence among people with disabilities (Bright and Kuper 2018). It may also be possible that fewer women with disability were prescribed medication by their service providers. From the programmatic perspective, we suggest that during consultations, service providers might also inform the accompanying person or other members of household about the medication and encourage the women to take their medication.

In some cases, women with certain functional disabilities have reported higher utilization of ANC components such as advice on exclusive breastfeeding and maintenance of a balanced diet during pregnancy as compared with non-disabled women. This could be due to the fact that in general, disabled women are considered high risk during their pregnancy (Walsh-Gallagher, Sinclair, and McConkey 2012) and require more ANC and medical examinations than non-disabled women (Mitra et al. 2015). This could also be explained by sympathetic behavior of health-care providers toward women with disabilities. However, one study from Nepal found that the attitude of health-care providers toward the disabled was negative and that the providers had limited knowledge and skills about providing services for the disabled. Few participants reported that the attitude of health-care providers was kind, respectful, caring or helpful towards women with disabilities (Devkota et al. 2017). Furthermore, disabled women in Pakistan receive social and economic support from family members, neighbors, and society, which may encourage them to seek better ANC. Redshaw and colleagues reported that women with disabilities in the UK use maternity services more than non-disabled women and had sufficient access and involvement in maternity care services (Redshaw et al. 2013). Thus, there are conflicting arguments about the health service utilization by women with disabilities. When there is a good health infrastructure, women with disabilities may benefit even more from health systems than women with no disabilities. We noticed that this trend of higher utilization of ANC services was primarily found in ANC counseling, in the overall analysis as well as among the poor population and those who reside in the rural areas. This pattern of favorable care for disabled women could also be attributed to the active involvement of community health workers (officially called the Lady Health Workers (LHWs)) who are responsible for providing basic maternal and child health-care services (including ANC counseling) during their routine household visits (WHO 2008). The LHWs are residents of the same community, and can relate to other women and navigate local norms, languages, and social relationships more effectively than outsiders (Mumtaz et al. 2013).

Strengths and Limitations

To the best of our knowledge, this is the first study that specifically examined the relationship between disability and utilization of ANC services, particularly among LMICs. The results are based on the most recent national survey in Pakistan. Our study presents a comprehensive analysis of the disability-ANC relationship that used numerous independent and dependent variables, and performed subgroup analyses.

Our study has some limitations. First, since the analysis used cross-sectional data, we cannot draw inferences about causal relationships between disability and ANC. Second, since we excluded two regions because their use of a different sampling frame, our findings cannot be generalized to the excluded regions, and they are not representative of Pakistan as a whole. The few significant disability-ANC associations in the subgroup analyses should be interpreted with caution because the unweighted cell count was less than 25 or 50. Moreover, we only included three domains of any disability (vision, walking, and cognition) in our multivariate model to assess the association with ANC outcomes, because the other domains of disability were excluded due to low prevalence. Similarly, no domains of severe disability were included for the same reason. Finally, the focus of our study was utilization of essential ANC services, while the interpersonal aspects of care such as the social and emotional support extended to women by the service providers were not included and are also important to consider.

5 CONCLUSIONS

Pakistan has a considerable population of disabled women in reproductive age. The prevalence of disability does not differ linearly by wealth quintile (highest among poorest and lowest among richest) or urban-rural geographies. Overall, the proportion of effective ANC coverage is very low and requires urgent measures for quality improvement. Our analyses indicate that the utilization of essential ANC services among disabled women is not different or lower than non-disabled women. This pattern is seen for urban-rural geographies and among the poor-rich segments of the population. We conclude that the country's health system, to a great extent, is responsive to the needs of disabled women for ANC services. However, adherence to medication (in this study, iron tablets/syrup) may be challenging for women with disabilities and could be improved by engaging a companion from same household to encourage compliance. Moving forward, there is a need in Pakistan to conduct qualitative studies that enhance our understanding of how our health system is meeting the unique needs of disabled women, to develop greater insights into how the psychosocial needs of disabled women are addressed during the provision of care, and to replicate disability-inclusive best practices in a broader context.

REFERENCES

Alkema, L., D. Chou, D. Hogan, S. Zhang, A. Moller, A. Gemmill, D. M. Fat, T. Boerma, M. Temmerman, C. Mathers, et al. 2016. "Global, Regional, and National Levels and Trends in Maternal Mortality between 1990 and 2015, with Scenario-based Projections to 2030: A Systematic Analysis by the UN Maternal Mortality Estimation Inter-agency Group." *The Lancet* 387 (10017): 462–474. https://doi.org/10.1016/S0140-6736(15)00838-7.

Banks, L. M., H. Kuper, and S. Polack. 2017. "Poverty and Disability in Low- and Middle-Income Countries: A Systematic Review." *PLOS ONE* 13 (9): e0204881. https://doi.org/10.1371/journal.pone.0204881.

Barros, A. D., C. Ronsmans, H. Axelson, E. Loaiza, A. D. Bertoldi, G. A. França, J. Bryce, J. T. Boerma, and C. G. Victora. 2012. "Equity in Maternal, Newborn, and Child Health Interventions in Countdown to 2015: A Retrospective Review of Survey Data from 54 Countries." *The Lancet* 379 (9822): 1225–1233. https://doi.org/10.1016/S0140-6736(12)60113-5.

Bickenbach, J. 2011. "The World Report on Disability." *Disability & Society* 26 (5): 655–68. https://doi.org/10.1080/09687599.2011.589198.

Blackford, K. A., H. Richardson, and S. Grieve. 2000. "Prenatal Education for Mothers with Disabilities." *Journal of Advanced Nursing* 32 (4): 898–904. https://doi.org/10.1046/j.1365-2648.2000.t01-1-01554.x.

Bradbury-Jones, C., J. P. Breckenridge, J. Devaney, F. Duncan, T. Kroll, A. Lazenbatt, and J. Taylor. 2015. "Priorities and Strategies for Improving Disabled Women's Access to Maternity Services when They Are Affected by Domestic Abuse: A Multi-method Study using Concept Maps." *BMC Pregnancy and Childbirth* 15 (1): 350. https://doi.org/10.1186/s12884-015-0786-7.

Brault, M. W., J. Hootman, C. G. Helmick, K. A. Theis, and B. S. Armour. 2009. "Prevalence and Most Common Causes of Disability among Adults–United States, 2005." *Morbidity and Mortality Weekly Report* 58 (16): 421–426. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5816a2.htm.

Bright, T., and H. Kuper. 2018. "A Systematic Review of Access to General Healthcare Services for People with Disabilities in Low and Middle Income Countries." *International Journal of Environmental Research and Public Health* 15 (9): 1879. https://doi.org/10.3390/ijerph15091879.

Brizuela, V., H. H. Leslie, J. Sharma, A. Langer, and Ö. Tunçalp. 2019. "Measuring Quality of Care for All Women and Newborns: How Do We Know If We Are Doing It Right? A Review of Facility Assessment Tools." *The Lancet Global Health* 7 (5): e624–e632. https://doi.org/10.1016/S2214-109X(19)30033-6.

Devkota, H. R., E. Murray, M. Kett, and N. Groce. 2017. "Healthcare Provider's Attitude towards Disability and Experience of Women with Disabilities in the Use of Maternal Healthcare Service in Rural Nepal." *Reproductive Health* 14 (1): 79. https://doi.org/10.1186/s12978-017-0330-5.

Ekabua, J., K. Ekabua, and C. Njoku. 2011. "Proposed Framework for Making Focused Antenatal Care Services Accessible: A Review of the Nigerian Setting." *ISRN Obstetrics and Gynecology* 2011: 25253964. https://doi.org/10.5402/2011/253964.

Frohmader, C., and S. Ortoleva. 2013. "Issues Paper: The Sexual and Reproductive Rights of Women and Girls with Disabilities." Paper presented at the ICPD BEYOND 20I4 International Conference on Human Rights. *Noordwijk, the Netherlands, July 1, 2013.* https://womenenabled.org/pdfs/issues_paper_srr_women_and_girls_with_disabilities_final.pdf.

Hameed, W., and B. I. Avan. 2018. "Women's Experiences of Mistreatment during Childbirth: A Comparative View of Home- and Facility-based Births in Pakistan." *PLOS ONE* 13 (3): e0194601. https://doi.org/10.1371/journal.pone.0194601.

Homer, C. S. E., and P. T. Hoope-Bender. 2016. "Supporting Women, Families, and Care Providers after Stillbirths." *The Lancet* 387 (10018): 516–517. https://doi.org/10.1016/S0140-6736(15)01278-7.

Hwang, K., M. Johnston, D. Tulsky, K. Wood, T. Dyson-Hudson, and E. Komaroff. 2009. "Access and Coordination of Health Care Service for People with Disabilities." *Journal of Disability Policy Studies* 20 (1): 28–34. https://doi.org/10.1177%2F1044207308315564.

Khasnabis, C., M. K. Heinicke, K. Achu, K. A. Jubah, S. Brodtkorb, P. Chervin, P. Coleridge, M. Davies, S. Deepak, K. Eklindh, et al. 2010. *Community-based Rehabilitation: CBR Guidelines*. Geneva, Switzerland: World Health Organization. https://www.ncbi.nlm.nih.gov/books/NBK310940/.

Krahn, G. L., D. K. Walker, and R. Correa-De-Araujo. 2015. "Persons with Disabilities as an Unrecognized Health Disparity Population." *American Journal of Public Health* 105 (S2): S198–S206. https://doi.org/10.2105/AJPH.2014.302182.

Kruk, M. E., A. D. Gage, C. Arsenault, K. Jordan, H. H. Leslie, S. Roder-DeWan, O. Adeyi, P. Barker, B. Daelmans, S. V. Doubova, et al. 2018. "High-quality Health Systems in the Sustainable Development Goals Era: Time for a Revolution." *The Lancet Global Health* 6 (11): e1196–e1252. https://doi.org/10.1016/S2214-109X(18)30386-3.

Kuhnt, J., and S. Vollmer. 2017. "Antenatal Care Services and Its Implications for Vital and Health Outcomes of Children: Evidence from 193 Surveys in 69 Low-income and Middle-income Countries." *BMJ Open* 7 (11): e017122. https://bmjopen.bmj.com/content/7/11/e017122.full.

Lawler, D., J. Lalor, and C. Begley. 2013. "Access to Maternity Services for Women with a Physical Disability: A Systematic Review of the Literature." *International Journal of Childbirth* 3 (4): 203–217. http://dx.doi.org/10.1891/2156-5287.3.4.203.

Lipson, J. G. 2000. "Pregnancy, Birth, and Disability: Women's Health Care Experiences." *Health Care for Women International* 21 (1): 11–26. https://doi.org/10.1080/073993300245375.

MacKay, D. 2007. "The United Nations Convention on the Rights of Persons with Disabilities." *Syracuse Journal of International Law & Commerce.* 34 (2): 323.

Madans, J. H., M. E. Loeb, and B. M. Altman. 2011. “Measuring Disability and Monitoring the UN Convention on the Rights of Persons with Disabilities: The Work of the Washington Group on Disability Statistics.” *BMC Public Health* 11: S4. https://doi.org/10.1186/1471-2458-11-S4-S4.

Mitra, M., K. M. Clements, J. Zhang, L. I. Iezzoni, S. C. Smeltzer, and L. M. Long-Bellil. 2015. “Maternal Characteristics, Pregnancy Complications and Adverse Birth Outcomes among Women with Disabilities.” *Medical Care* 53 (12): 1027-1032. https://journals.lww.com/lww-medicalcare/Abstract/2015/12000/Maternal_Characteristics,_Pregnancy_Complications,.6.aspx.

Mitra, S. 2018. “Prevalence of Functional Difficulties.” In *Disability, Health and Human Development*, Palgrave Studies in Disability and International Development: 61–88. New York: Palgrave Pivot. https://doi.org/10.1057/978-1-137-53638-9_4.

Morrison, J., M. Basnet, B. Budhathoki, D. Adhikari, K. Tumbahangphe, D. Manandhar, A. Costello, and N. Groce. 2014. “Disabled Women’s Maternal and Newborn Health Care in Rural Nepal: A Qualitative Study.” *Midwifery* 30 (11): 1132–1139. https://doi.org/10.1016/j.midw.2014.03.012.

Mumtaz, Z., Sarah S. C. Nykiforuk, A. Bhatti, A. Ataullahjan, and B. Ayyalasomayajula. 2013. “The Role of Social Geography on Lady Health Workers’ Mobility and Effectiveness in Pakistan.” *Social Science & Medicine* 91: 48–57. https://doi.org/10.1016/j.socscimed.2013.05.007.

Murthy, G. V. S., N. John, J. Sagar, and South India Disability Evidence Study Group. 2014. “Reproductive Health of Women with and without Disabilities in South India, the SIDE Study (South India Disability Evidence) Study: A Case Control Study.” *BMC Women’s Health* 14 (1): 146. https://doi.org/10.1186/s12905-014-0146-1.

National Institute of Population Studies (NIPS) [Pakistan], and Macro International Inc. 2008. *Pakistan Demographic and Health Survey 2006-07*. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc. https://dhsprogram.com/pubs/pdf/FR200/FR200.pdf.

National Institute of Population Studies (NIPS) [Pakistan] and ICF. 2018. *Pakistan Demographic and Health Survey 2017-18.* Islamabad, Pakistan, and Rockville, Maryland, USA: NIPS and ICF. https://dhsprogram.com/pubs/pdf/FR354/FR354.pdf.

Nikiema, L., Y. Kameli, G. Capon, B. Sondo, and Y. Martin-Prével. 2010. “Quality of Antenatal Care and Obstetrical Coverage in Rural Burkina Faso.” *Journal of Health, Population, and Nutrition* 28 (1): 67. https://doi.org/10.3329/jhpn.v28i1.4525.

Ortoleva, S., and H. Lewis. 2012. “Forgotten Sister–A Report on Violence against Women with Disabilities: An Overview of its Nature, Scope, Causes and Consequences.” *Northeastern University School of Law Research Paper*, No. 104. Boston, MA, USA: Northeastern University School of Law. https://repository.library.northeastern.edu/files/neu:332599/fulltext.pdf.

Pakistan Bureau of Statistics, Government of Pakistan. 2017. “Population & Housing Census 2017.” http://www.pbs.gov.pk/content/block-wise-provisional-summary-results-6th-population-housing-census-2017-january-03-2018.

Plantinga, L., K. L. Johansen, D. Schillinger, and N. R. Powe. 2012. “Lower Socioeconomic Status and Disability among US Adults with Chronic Kidney Disease, 1999-2008.” *Preventing Chronic Disease* 9: 100052. http://dx.doi.org/10.5888/pcd9.110052.

Prilleltensky, O. 2003. “A Ramp to Motherhood: The Experiences of Mothers with Physical Disabilities.” *Sexuality and Disability* 21 (1): 21–47. https://doi.org/10.1023/A:1023558808891.

Redshaw, M., R. Malouf, H. Gao, and R. Gray. 2013. “Women with Disability: The Experience of Maternity Care during Pregnancy, Labour and Birth and the Postnatal Period.” *BMC Pregnancy and Childbirth* 13 (1): 174. https://doi.org/10.1186/1471-2393-13-174.

Rugoho, T., and F. Maphosa. 2017. “Challenges Faced by Women with Disabilities in Accessing Sexual and Reproductive Health in Zimbabwe: The Case of Chitungwiza Town.” *African Journal of Disability* 6: 1–8. https://doi.org/10.4102/ajod.v6i0.252.

Rutstein, S. O., and K. Johnson. 2004. *The DHS Wealth Index*. DHS Comparative Reports No. 6. Calverton, MD, USA: ORC Macro. https://dhsprogram.com/pubs/pdf/CR6/CR6.pdf.

Tappis, H., A. Kazi, W. Hameed, Z. Dahar, A. Ali, and S. Agha. 2015. “The Role of Quality Health Services and Discussion about Birth Spacing in Postpartum Contraceptive Use in Sindh, Pakistan: A Multilevel Analysis.” *PLOS ONE* 10 (10): e0139628. https://doi.org/10.1371/journal.pone.0139628.

The Lancet Editorial. 2011. “Championing Good Health for People with Disabilities.” *The Lancet* 37 (9807): 1895. https://doi.org/10.1016/S0140-6736(11)61825-4.

Thierry, J. M. 1998. “Observations from the CDC: Promoting the Health and Wellness of Women with Disabilities.” *Journal of Women’s Health* 7 (5): 505–507. https://doi.org/10.1089/jwh.1998.7.505.

Thompson, S. 2017. “Disability Prevalence and Trends.” K4D Helpdesk Report. Brighton, UK: Institute of Development Studies. http://www.gsdrc.org/wp-content/uploads/2017/09/179-Disability-prevalence-and-trends.pdf.

UNICEF. 2019. “World Not Delivering Quality Maternal Health Care to Poorest Mothers.” New York, USA: UNICEF. https://www.unicef.org.uk/press-releases/world-not-delivering-quality-maternal-health-care-to-poorest-mothers/.

Victora, C. G., J. H. Requejo, A. J. D. Barros, P. Berman, Z. Bhutta, T. Boerma, M. Chopra, A. D. Francisco, B. Daelmans, E. Hazel, et al. 2016. “Countdown to 2015: A Decade of Tracking Progress for Maternal, Newborn, and Child Survival.” *The Lancet* 387 (10032): 2049–2059. https://doi.org/10.1016/S0140-6736(15)00519-X.

Walsh-Gallagher, D., M. Sinclair, and R. McConkey. 2012. “The Ambiguity of Disabled Women’s Experiences of Pregnancy, Childbirth and Motherhood: A Phenomenological Understanding.” *Midwifery* 28 (2): 156–162. https://doi.org/10.1016/j.midw.2011.01.003.

World Health Organization (WHO). 2008. Global Health Workforce Alliance. Pakistan's Lady Health Worker Programme: Global Health Workforce Alliance. World Health Organization, Case study. Geneva: World Health Organization.
https://www.who.int/workforcealliance/knowledge/case_studies/CS_Pakistan_web_en.pdf?ua=1

World Health Organization (WHO). 2005. "Disability, including Prevention, Management and Rehabilitation." Geneva, Switzerland: WHO.
https://www.who.int/disabilities/WHA5823_resolution_en.pdf?ua=1.

WHO. 2015. "Pregnancy, Childbirth, Postpartum and Newborn Care. A Guide for Essential Practice*." 3rd Ed. Geneva, Switzerland: WHO*.
https://apps.who.int/iris/bitstream/handle/10665/249580/9789241549356-eng.pdf;jsessionid=B225C0641049542278C080637536DFFB?sequence=1.

WHO. 2018. "Disability and Health." Geneva, Switzerland: WHO. https://www.who.int/news-room/fact-sheets/detail/disability-and-health.

WHO and UNPFA. 2009. "Promoting Sexual and Reproductive Health for Persons with Disabilities: WHO/UNFPA Guidance Note." Geneva, Switzerland: WHO.
https://apps.who.int/iris/handle/10665/44207.

You, D., L. Hug, S. Ejdemyr, P. Idele, D. Hogan, C. Mathers, P. Gerland, J. R. New, and L. Alkema. 2015. "United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). Global, Regional, and National Levels and Trends in Under-5 Mortality between 1990 and 2015, with Scenario-based Projections to 2030: A Systematic Analysis by the UN Inter-agency Group for Child Mortality Estimation." *The Lancet* 386 (10010): 2275–86. https://doi.org/10.1016/S0140-6736(15)00120-8.

Zhao, G., C. A. Okoro, J. Hsia, W. S. Garvin, and M. Town. 2019. "Prevalence of Disability and Disability Types by Urban–Rural County Classification—US, 2016." *American Journal of Preventive Medicine* 57 (6): 749–756. https://doi.org/10.1016/j.amepre.2019.07.022.

APPENDICES

Appendix Table 1 **Inequalities in the uptake of antenatal components between women with and without disabilities, overall and according to wealth quintile and type of residence**

	Full dataset		Wealth Status					Place of residence				
			Poor		Rich		P-value for Poor-rich difference	Urban		Rural		P-value for Urban-rural difference
Variables	Disabled/non-disabled	AOR (95% CI)	Disabled/non-disabled	AOR (95% CI)	Disabled/non-disabled	AOR (95% CI)		Disabled/non-disabled	AOR (95% CI)	Disabled/non-disabled	AOR (95% CI)	
ANC Coverage												
Received ANC												
Any disability in vision	87.7 / 89.1	1.2 (0.8 - 1.8)	75.4 / 80.5	1.4 (0.9-2.2)	98.1 / 98.5	1.7 (0.3-11.4)	0.968	95.7 / 97.2	2.1 (1.0-4.8)	83.8 / 84.6	1.1 (0.7-1.8)	0.268
Any disability in cognition	87.9 / 86.7	1.1 (0.7 - 1.7)	75.7 / 77.3	1.2 (0.8-2.0)	98.2 / 96.1	0.4 (0.1-1.7)	0.174	95.8 / 96.3	1.2 (0.3-4.9)	83.9 / 82.8	1.1 (0.7-1.7)	0.918
Any disability in walking	87.8 / 87.7	0.9 (0.5 - 1.5)	75.8 / 76.8	1.1 (0.6-2.2)	98.3 / 95.1	0.5 (0.2-1.4)	0.111	96.1 / 90.8	0.5 (0.2-1.2)	83.7 / 85.4	1.1 (0.6-2.0)	0.097
4+ ANC visits												
Any disability in vision	51.5 / 50.7	1.0 (0.7 - 1.4)	28.1 / 28.3	1.0 (0.62-1.6)	76.8 / 78.3	1.1 (0.60-2.2)	0.699	71.1 / 66.6	1.0 (0.7-1.5)	47.7 / 42.0	1.0 (0.7-1.6)	0.784
Any disability in cognition	51.7 / 46.0	0.9 (0.6 - 1.3)	28.4 / 22.3	0.8 (0.5-1.3)	77.0 / 74.0	0.9 (0.5-1.6)	0.831	70.8 / 68.6	0.9 (0.5-1.7)	42.0 / 36.8	0.9 (0.6-1.4)	0.864
Any disability in walking	51.3 / 54.8	1.1 (0.8 - 1.6)	28.1 / 28.5	1.01 (0.6-1.8)	77.0 / 73.7*	0.9 (0.5-1.6)	0.792	70.9 / 67.8*	1.1 (0.6-2.0)	41.6 / 45.2	1.5 (0.7-1.9)	0.919
Treatment												
Received two or more tetanus toxoid injections												
Any disability in vision	69.8 / 67.7	1.1 (0.8 - 1.6)	51.4 / 50.9	1.0 (0.6-1.7)	88.5 / 84.4	1.5 (0.8-2.7)	0.289	81.1 / 79.1	1.3 (0.8-2.1)	63.6 / 62.0	1.0 (0.7-1.6)	0.619
Any disability in cognition	69.1 / 67.8	1.2 (0.8 - 1.6)	54.6 / 50.7	1.3 (0.8-2.0)	87.4 / 84.5	1.2 (0.5-2.8)	0.977	85.7 / 79.0	1.7 (0.7-4.1)	62.3 / 62.1	1.0 (0.8-1.5)	0.398
Any disability in walking	74.1 / 67.5	1.3 (0.9 - 2.0)	59.1 / 50.6	1.5 (0.8-2.6)	87.7 / 84.4	1.3 (0.6-3.0)	0.960	77.1 / 79.4	1.1 (0.6-1.9)	71.9 / 61.7*	1.5 (0.9-2.6)	0.261
Took iron tablets or syrup												
Any disability in vision	49.3 / 59.2 ***	0.7 (0.5 - 0.9)*	39.4 / 46.0	0.8 (0.5-1.1)	59.4 / 74.6***	0.5 (0.3-0.7)**	0.182	56.9 / 67.5*	0.7 (0.5-1.0)	45.2 / 55.0*	0.7 (0.5-1.0)*	0.868
Any disability in cognition	55.5 / 58.6	1.0 (0.7 - 1.3)	45.4 / 45.5	1.0 (0.7-1.6)	61.1 / 74.3	0.52 (0.3-0.9)*	0.098	67.2 / 66.7	1.1 (0.6-2.0)	50.7 / 54.5	0.9 (0.6-1.3)	0.658
Any disability in walking	57.7 / 58.5	1.0 (0.7 - 1.3)	39.6 / 45.7	0.8 (0.5-1.4)	72.4 / 73.8	0.9 (0.5-1.9)	0.590	60.9 / 67.1	0.9 (0.6-1.3)	55.3 / 52.3	1.00 (0.7-1.6)	0.664
Examination												
Blood pressure measured												
Any disability in vision	78.9 / 78.7	1.1 (0.8 - 1.5)	65.2 / 65.0	1.2 (0.8-1.7)	94.5 / 93.6	1.3 (0.5-3.2)	0.870	91.4 / 89.1	1.6 (0.8-3.1)	72.0 / 73.1	0.9 (0.7-1.4)	0.193
Any disability in cognition	73.4 / 78.6	0.8 (0.5 - 1.2)	56.0 / 62.6	0.8 (0.5-1.3)	89.4 / 93.9	0.5 (0.2-1.6)	0.519	85.4 / 89.4	0.7 (0.2-1.8)	68.5 / 73.3	0.9 (0.5-1.3)	0.687
Any disability in walking	76.6 / 75.6	0.8 (0.5 - 1.1)	54.6 / 62.5	0.7 (0.4-1.2)	91.3 / 93.8	0.8 (0.3-1.7)	0.874	82.0 / 89.7*	0.6 (0.3-1.1)	72.6 / 73.1	0.9 (0.6-1.4)	0.321
Urine sample taken												
Any disability in vision	60.7 / 62.7	1.0 (0.7 - 1.3)	42.2 / 39.9	1.1 (0.7-1.7)	84.3 / 85.2	1.0 (0.5-1.7)	0.737	77.6 / 79.8	1.0 (0.6-1.7)	51.4 / 53.5	1.0 (0.7-1.4)	0.790
Any disability in cognition	56.3 / 62.5	0.9 (0.6 - 1.3)	36.7 / 40.3	1.0 (0.6-1.6)	77.7 / 85.4	0.6 (0.3-1.1)	0.345	74.9 / 79.9	0.7 (0.3-1.6)	48.7 / 53.6	0.9 (0.6-1.5)	0.693
Any disability in walking	64.8 / 62	1.0 (0.7 - 1.5)	37.4 / 40.2	0.9 (0.5-1.6)	84.1 / 85.2	1.0 (0.5-1.8)	0.821	75.8 / 79.9	0.9 (0.5-1.6)	56.7 / 53.2	1.1 (0.7-1.7)	0.619
Blood sample taken												
Any disability in vision	61.0 / 61.9	1.0 (0.7 - 1.4)	46.9 / 41.2	1.3 (0.8-1.9)	83.9 / 82.9	1.1 (0.6-1.8)	0.655	51.3 / 53.7	1.2 (0.8-1.9)	78.8 / 78.3	0.9 (0.6-1.4)	0.389
Any disability in cognition	57.3 / 62.1	0.9 (0.6 - 1.3)	37.5 / 41.9	0.9 (0.6-1.5)	81.6 / 83.0	0.9 (0.4-1.9)	0.959	48.5 / 53.8	1.1 (0.5-2.3)	78.9 / 78.3	0.9 (0.6-1.4)	0.684
Any disability in walking	61.0 / 61.9	0.9 (0.6 - 1.2)	31.5 / 42.0	0.6 (0.4-1.3	83.7 / 83.0	1.1 (0.5-2.3)	0.181	51.9 / 53.6	0.8 (0.4-1.5)	72.5 / 78.7	0.9 (0.6-1.2)	0.870
Counselling												
Advice on early initiation of breastfeeding												
Any disability in vision	46.5 / 45.8	1.0 (0.8 - 1.4)	26.7 / 27.7	0.9 (0.6-1.5)	66.3 / 64.2	1.1 (0.7-1.6)	0.528	67.9 / 60.3	1.5 (0.9-2.4)	43.7 / 38.5	0.8 (0.6-1.2)	0.057
Any disability in cognition	39.6 / 46.1	0.8 (0.6 - 1.1)	18.5 / 28.2	0.6 (0.3-1.1)	61.4 / 64.4	0.8 (0.5-1.5)	0.385	63.7 / 60.7	1.1 (0.6-2.1)	29.8 / 38.7	0.7 (0.4-1.0)	0.232
Any disability in walking	53.1 / 45.5*	1.3 (0.9 - 1.7)	27.1 / 27.6	0.9 (0.6-1.5)	71.0 / 63.9	1.4 (0.8-2.3)	0.258	63.3 / 60.7	1.2 (0.7-1.9)	45.7 / 37.9	1.3 (0.9-2.0)	0.877
Advice on exclusive breastfeeding												
Any disability in vision	49.9 / 47.6	1.1 (0.8 - 1.4)	35.8 / 28.6	1.4 (0.9-2.0)	68.9 / 66.7	1.1 (0.7-1.7)	0.479	67.2 / 63.3	1.3 (0.8-2.1)	40.3 / 39.7	1.0 (0.7-1.4)	0.443
Any disability in cognition	44.9 / 47.9	0.9 (0.6 - 1.4)	29.5 / 29.1	1.0 (0.6-1.9)	60.0 / 67.1	0.8 (0.3-1.3)	0.407	66.7 / 63.4	1.1 (0.6-2.3)	36.0 / 40.0	0.9 (0.5-1.4)	0.523
Any disability in walking	54.3 / 47.4	1.2 (0.9 - 1.7)	30.3 / 29.1	1.0 (0.6-1.7)	68.6 / 67.0	1.1 (0.6-1.7)	0.258	64.7 / 63.5	1.2 (0.7-2.0)	46.6 / 39.5	1.3 (0.8-1.9)	0.829
Advice on maintaining balanced diet during pregnancy												
Any disability in vision	64.7 / 60.9	1.2 (0.9 - 1.6)	50.0 / 39.6*	1.5 (1.0-1.1)*	80.2 / 80.4	1.0 (0.6-1.6)	0.230	77.4 / 74.6	1.4 (0.8-2.4)	57.8 / 54.0	1.1 (0.8 -1.7)	0.772
Any disability in cognition	57.8 / 61.3	0.9 (0.6 - 1.3)	40.3 / 40.3	1.0 (0.6-1.7)	76.9 / 80.5	0.7 (0.4-1.4)	0.506	81.4 / 74.6	1.6 (0.8-3.3)	84.1 / 54.6	0.8 (0.5-1.2)	0.129
Any disability in walking	71.9 / 60.6**	1.6 (1.2 - 2.2)**	44.7 / 40.2	1.2 (0.7-1.9)	87.2 / 80.0	1.8 (1.0-3.3)	0.863	80.0 / 74.5	1.7 (1.1-2.2)*	66.0 / 53.7*	1.6 (1.0-2.3)*	0.949
Received all essential ANC components												
Any disability in vision	19.6 / 21.9	0.9 (0.6 - 1.2)	{6.5} / 7.3	0.8 (0.3-2.2)	36.6 / 40.1	0.8 (0.5-1.3)	0.914	33.1 / 34.6	1.0 (0.6-1.5)	[12.1] / 15.6	0.8 (0.4-1.3)	0.330
Any disability in cognition	15.8 / 22.1	0.7 (0.4 - 1.1)	{3.6} / 7.4	0.5 (0.1-1.8)	27.3 / 40.4	0.5 (0.3-0.9)*	0.864	32.6 / 34.5	0.9 (0.5-1.6)	[8.9] / 15.7	0.5 (0.3-1.0)	0.246
Any disability in walking	24.4 / 21.6	1.1 (0.7 - 1.6)	{2.1} / 7.4	0.3 (0.1-1.2)	41.6 / 39.7	1.0 (0.6-1.7)	0.082	36.9 / 34.3	1.3 (0.8-2.1)	[15.3] / 15.4	0.9 (0.5-1.7)	0.345

Figures in square brackets are based on 25-49 unweighted cases. Figures in curly brackets indicates that a figure is based on fewer than 25 unweighted cases
Significant criteria for p-values: *p<0.05; **p<0.01; ***p<0.001

Appendix Table 2 **Prevalence of any disability and severe functional disability among women age 15-49 years with a live birth in the 5 years preceding the survey, according to the domains**

Domains of disability	Any disability % (95% CI)	Severe disability % (95% CI)	Number of women
One or more disability	14.1 (12.7 - 15.7)	2.6 (2.1 - 3.2)	**6,711**
Vision	7.0 (6.0 - 8.1)	0.8 (0.6 - 1.2)	**6,711**
Cognition	4.8 (4.0 - 5.8)	0.6 (0.4 - 0.9)	**6,711**
Mobility	4.8 (4.1 - 5.7)	1.2 (0.8 - 1.6)	**6,711**
Hearing	1.8 (1.4 - 2.3)	0.3 (0.1 - 0.5)	**6,711**
Self-care	1.0 (0.7 - 1.4)	0.3 (0.1 - 0.6)	**6,711**
Communication	0.7 (0.4 - 1.0)	0.1 (0.0 - 0.3)	**6,711**