

Food Insecurity and Dietary Diversity among Disabled Population in Rural Areas of Bamyan-Afghanistan

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Abstract

Food insecurity is global challenge which developing countries are more affected. All members of the societies are at risk, but people with disabilities are more likely at risk of food insecurity. This study aims to measure the dietary diversity among people with physical disabilities in the rural communities of Afghanistan. For the measurement of dietary diversity, Household Dietary Diversity Score (HDDS) was used to measure the existence of 14 standard food groups in diet of the respondents. Snowball sampling technique was applied in this research and total number of sample size was (n=200). Three districts of Bamyan province (Cntr, Yakawlang and Panjab) were selected for primary data collection. In the sampling frame only physical disabled people were included and the other types of disabled population were excluded. This research found that the HDDS indicator of 94.5% of people were between (0-5). This range is very low and low dietary diversity score.

Article DNA

Article Type:
Research Article

DOI:
10.5281/zenodo.17408059

Article History:
Received: 08-10-2025
Accepted: 14-10-2025
Published: 21-10-2025

Keywords:
Afghanistan, Disabled population, Food Insecurity, Household Dietary Diversity Score, Rural Communities.

How to Cite

Ali Reza Behzad,, Mohammad Ismail Hashime,, Hamidullah Younisi. (2025). Food Insecurity and Dietary Diversity among Disabled Population in Rural Areas of Bamyan- Afghanistan. UAR Journal of Multidisciplinary Studies (UARJMS), 1(8), 01–16.
<https://doi.org/10.5281/zenodo.17408059>

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***Related declarations are provided in the final section of this article.*

This indicates a very low score for the disabled population who had partial access to the cereals, milk and dairy products, tubers (potato) and legumes. A comprehensive study is recommended to include different types of disabilities and analyze numerous attributes of disabled individual.

Introduction

Food insecurity remains as global challenge among all countries including developing and developed countries. Ergo each country and region has been trying to alleviate or at least to mitigate the challenges and consequences of the food insecurity. The determinants of food security vary among different countries even within a country it differs. In developing countries accessibility to diverse food items are depending upon their social, economical and political status and have limited access rather than developed nations. In Afghanistan different barriers cause limited accessibility to divers' food elements. The root cause of all post conflict country obstacles is political instability, which further injured social status and accelerate economic instability in the country. The people of Afghanistan are suffering from inadequate access to food, health facilities, education and unstable economy. Socio-economic factors are the main determinants of food security in a nation, whereas health factors especially disability has not been considered as a determinant in previous research in Afghanistan. Food security exists "when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2010). This definition underpins the four widely recognized pillars of food security: availability, access, utilization, and food stability. Food insecurity a condition where there is inadequate quantity of affordable, appropriately nutritional, and secure food or the capacity to achieve adequate food in socially acceptable ways is restricted (Sarlio-Lähteenkorva & Lahelma,2001; FAO,2010). Food insecurity is linked with poor health outcomes (Ashiabi & Neal, 2007), depression and anxiety (Hadley et al., 2008), reduced micronutrient, fruit and vegetable consumption (Rao et al., 2001), obesity and overweight; poor child growth (Mutisya et al., 2015); and those households whom affected by food insecurity and poverty are likely to have additional resource- related difficulties like housing insecurity and energy insecurity which can affect negatively on other facets of life (Wolf et al., 2015). According to the United Nations, nearly 12 million Afghans citizens face acute food insecurity and inadequate access to stable occupations and income (Islam et al., 2021). The World Health Organization (WHO) defines the disability as 'the interaction between individuals with a health condition (cerebral palsy, Down syndrome and depression) and personal and environmental factors (negative attitudes, inaccessible transportation, public building and limited social supports) (World Health

Organization, 2021). People with disabilities in third world countries have been marginalized and have been encountered to varieties of difficulties in all aspects of their life that no other social group has faced (Pulsiri et al., 2019).

As food security is a global phenomenon and it affects different groups of people globally, so different researches and studies have been conducted by different scholars all across the world. As this title is new in Afghanistan therefore similar and close related research has not been conducted in the study area. But others countries have tried to identify and illustrate the fact related to food security status among disabled population. National Disability Survey of Afghanistan (NDSA) reported that among people with severe disabilities, physical disabilities were higher in prevalence compared with other type of disabilities they measured (Handicap International, 2006). In (2023) Khalidha Nasiri with her research team has stated that moderate and severe disabilities (MSD) prevalence was upwards 35% of 6/7 domains. Across most disability types, being a woman, older age, living in rural areas, being illiterate, living in low-income households and living in unemployed households had the highest level of MSD (Nasiri et al., 2023).

To empower people with disabilities existence of different supportive programs like Community Based Rehabilitation (CBR) is effective to provide services and opportunities in conflict countries like Afghanistan (Trani et al., 2022). The main factors of disabilities among children in Afghanistan are family history of disabilities, congenital factors (disabilities at birth), anemia, Hyperemesis Gravidarum, Trauma, psychological stress and other factors (Nasir et al., 2004). A study findings in (2021) which was conducted in Takhar province of Afghanistan, indicated that 66.79% of the farming household were food insecure, whilst 30.53% were severely food insecure (Samim et al., 2021)

In Afghanistan, the relationship between food security and physical disability is a major issue, worsened by continuous conflict, economic instability, and natural disasters. Food insecurity is widespread in Afghanistan, impacting more than half of the population, with over 11 million individuals requiring food assistance (Samim et al., 2024). The difficulties are complex, encompassing agricultural productivity, socioeconomic factors, and issues of accessibility. A study in (2024) found that 54.6% of vulnerable population is women and 33% is children, it indicates that in addition of people with disabilities the other social groups are also negatively at risk (Behzad et al., 2024)

Food insecurity is often worsened by physical disabilities, as these create obstacles to accessing resources and employment opportunities equally. Households with disabled individuals are at a higher risk of food insecurity because they encounter challenges that limit their capacity to participate in productive work or earn an income, which in turn impacts the household's food security. This issue extends beyond economics, as it also involves social aspects where disabilities reduce involvement in community activities that might otherwise enhance access to food resources (Coleman-Jensen & Nord, 2013).

Globally, individuals with disabilities encounter greater challenges in accessing food and are more susceptible to food insecurity than those without disabilities. This heightened vulnerability often stems from the absence of support systems and infrastructure specifically designed to meet the needs of disabled people. To effectively combat food insecurity within this group, it is crucial to implement inclusive strategies and policies that address these distinct obstacles (Schwartz et al., 2019; Widome et al., 2014).

To tackle food security issues in Afghanistan, a holistic strategy is essential. This strategy should not only aim to enhance agricultural productivity and efficiency but also address the wider socio-economic challenges, particularly those encountered by people with disabilities. Policy measures must prioritize improving social inclusion, economic opportunities, and accessibility for disabled individuals to strengthen their resilience against food insecurity (Samim & Zhiquan, 2020; Coleman-Jensen and Nord, 2013).

Afghanistan's healthcare system encounters significant challenges, particularly affecting individuals with disabilities. One critical area is routine immunization, as the nation continues to battle diseases such as polio and measles. Although innovative healthcare delivery by non-governmental organizations has yielded encouraging outcomes in broadening essential services like immunization, access remains constrained (Mugali et al., 2017).

International frameworks, such as the Convention on the Rights of Persons with Disabilities (CRPD), highlight the importance of ensuring equal opportunities and rights for individuals with disabilities. However, the application and integration of these international standards at the national level remain inconsistent. These frameworks necessitate states to reflect on and revise domestic-level disability laws to foster social integration and advance the human rights of persons with disabilities (Stein & Lord, 2009).

In summary, addressing the challenges faced by individuals with disabilities in Afghanistan requires multi-faceted approaches that include improving access to healthcare services, enhancing educational opportunities, and rigorously implementing international human rights frameworks. These steps are essential to break the cycle of poverty and disability, ensuring equitable health, education, and social outcomes for individuals with disabilities in Afghanistan.

Scope and Objectives

This study aims to measure the dietary diversity and nutrition status in the households' level, and to find the household dietary diversity score range among rural households with physical disabled head. In addition the purpose of the study is to highlight the nutritious status of disabled population in order to attract more attention of national and international policy makers. The scope of the study is to cover only households with physical disabled head who are living in the rural area of the country. Whereas sensory disabled, intellectual disabled and mental health disabled people are excluded from the study.

At the result of a comprehensive review of the literature there are no scientific proofs that indicate the application of Household Dietary Diversity Score in Afghanistan. Neither international agencies nor scholars have studied the dietary diversity of disabled population in the study area. Even though the international agencies apply the Integrated Food Security Phase Classification (IPC) tool to determine the severity of food insecurity in the society, so the study gap is lack of dietary diversity and nutritious quality among disabled households.

Materials and Methods

This study was designed and conducted at the end of master degree and it is a part of the thesis which rural physical disabled households were included in the study. The study intends to measure the dietary diversity score among physical disabled people in Bamyan province of Afghanistan. In addition of socio-economic factors the Household Dietary Diversity Score (HDDS) tool was applied and numerous questions were asked to identify the key determinants of food in/security in the area. HDDS indicator contains 14 standardized categories of food groups. Respondents answered with either yes (score = 1) if a family member consumed a specific food item within a category in the last 24 hours, or no (score = 0) if they did not consume. This study was based on the formula given by Swindale and Bilinsky (Swindale & Blinsky, 2006).

HDDS (score ranges from 1 to 14) and the formula is:

$$HDDS = \sum(A + B + C + D + E + F + G + H + I + J + K + L + M + N)$$

Where,

HDDS = Household Dietary Diversity Score

A = Indicates to all type of cereals (rice, maize, wheat, barley, millet, sorghum)

B = Vitamin A rich vegetables and tubers (carrots, squash, pumpkin, orange, sweet potatoes)

C = White tubers and roots (potatoes, cassava, white yams)

D = Dark green leafy vegetables (Spinach, kale, amaranth, chard)

E = Other types of vegetables (onion, cucumber, cabbage, eggplant)

F = Vitamin A rich fruits (mango, papaya, apricot, melon)

G = Other fruits (banana, apple, citrus, grapes)

H = Means meat (beef, goat, sheep, poultry)

I = Indicates eggs (all kinds)

J = Means fish

K = Pulse, legumes, nuts and seeds (beans, lentils, peas, soybeans, sesame)

L = Milk and other dairy products (milk, yogurt, cheese, butter, curd)

M = Oils and fats (ghee, margarine, lard)

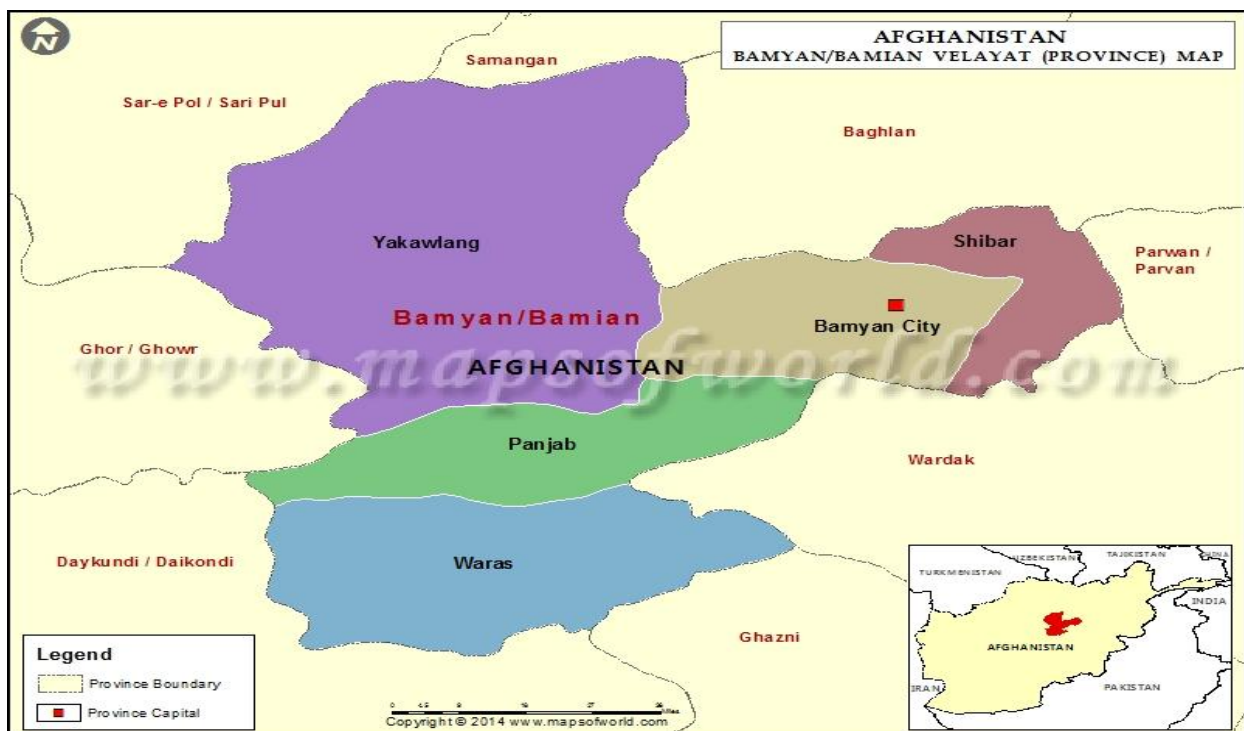
N = Sweets (sugar, honey, candy, jam, pastries)

Data Collection and Sampling Technique

Snow ball sampling technique was applied and the total number of sample size was n= 200. Structured questionnaire was used to collect dietary data and all participants for the survey were physical disabled heads; the other disabled categories (mental health disabled, sensory disabled, intellectual disabled, neurological disabled, invisible disabled and combined disables) of population were excluded. The reason was to preclude from complexity of the study and also Afghanistan is a war affected country, so the cases of mobility disability are in a very high rate. The primary data was collected through structured questionnaires in March and April 2025.

Study Area

Bamyan, located in Afghanistan, is a region of profound historical and cultural significance. It is best known for the colossal Bamiyan Buddhas carved into the cliffs of the region, which were created around 1,700 years ago. These statues were among the tallest standing Buddha representations, with the larger statue reaching 53 meters (Grün et al., 2004; Francioni, 2003). Bamyan one of the most ancient and historical cities of Afghanistan was purposely. This province of Afghanistan is considered as a rural and remote area of the country due to lack of facilities and infrastructures. Bamyan is located with (2500 m) above the sea level in the west-central Hindu Kush Mountains. This province of Afghanistan has 18029 km² areas and consists 2.8% of total area of the country. Bamyan is one of the most ancient and coldest cities of Afghanistan which has extremely cold and snowy winter and moderate climate (Behzad et al., 2024). Band-E-Amir the first national park of Afghanistan is also located in this province (Aliyar et al., 2024). The Bamiyan Valley serves as an example of a cultural landscape, where the intricate interactions between human culture and natural environments are evident. UNESCO recognizes Bamiyan as part of the cultural landscapes that illustrate the relationship between culture and sustainable land use, thus advocating for its preservation amidst threats like infrastructure development and urbanization (Rössler, 2006). Three districts of Bamyan province (Bamyan city, Yakawlang and Panjab) were selected for primary data collection areas. These three districts varies in social structure, economic development and topographical feature, so the combination of these three areas for data collection guarantee the representativeness of samples from population and assure an accurate result.



(MapsofWorld, n.d.)

Figur1: location of the study area

Results and Discussion

Developing countries especially which are suffering from high level of political and economical instability like Afghanistan experienced chronic food insecurity and poverty. The socio-demographic features of the study area showed in table1 that majority of the disabled population were illiterate, and numerous number of them were working as tailor, shoemaker, teacher and retailer and more than half of them were unemployed. Average age of the respondent is 38.04 with the SD of 11.269. The annual and monthly income of the households is very low which they cannot afford the basic needs and cannot fulfill the daily expenditures of their households.

Table1: Socio-demographic status of the households

Variables	Description	Mean	SD / %
Age	The age of households' head (year)	38.04	11.27
Disability Duration	Duration of living with disability in year	15.44	3.59
Education level: No formal Education Primary Education Secondary Education Higher Education	households head education level	2.08	0.25 55.20 12.20 22.30 10.30%
Household Size	Total number of people who are living and eating under one individual head	7.49	2.54
Income: Monthly Annual	The households monthly and annual total income	6423.12AFN 70234.32AFN	1023.34AFN 5034.54AFN
Employment Status: Employed Unemployed	the current state of the households head employment		43.55 57.45
Livelihood Source: Agriculture and Livestock Salary Other	Main Source of households livelihood		59.90 10.35 20.00

Table 2 indicates that 39% of the respondents were between 36-40 years old and it reveals that numerous disabled individuals are young. And primary data showed that majority of disabled people are between 25-45 years old. The reason why most of people with physical disabilities are between 25-45 years old needs further research and one reason could be the past 20 years conflict in the country. Whereas cumulative percentage shows 87 percent of the households head are under 50 years old which a significant figure.

Table2: Age wise distribution of the respondents

Age wise classes	Frequency	Percent	Valid Percent	Cumulative Percent
20-25	7	3.50	3.50	3.50
26-30	30	15.00	15.00	18.50
31-35	31	15.50	15.50	34.00
36-40	78	39.00	39.00	73.00
41-45	22	11.00	11.00	84.00
46-50	6	3.00	3.00	87.00
51-55	9	4.50	4.50	91.50
56-60	2	1.00	1.00	92.50
61-65	3	1.50	1.50	94.00
66-70	2	1.00	1.00	95.00
71-75	5	2.50	2.50	97.50
76-80	4	2.00	2.00	99.50
+80	1	0.50	0.50	100
Total	200	100.0	100.0	

Household Dietary Diversity Score (HDDS)

People with physical disabilities in Bamyán city have slightly higher mean of HDDS as compared to other two districts. The reasons could be comparatively high income and accessibility of vitamin rich fruits and vegetables in the Bamyán city, in addition limp people

have the opportunities working as shoemaker, tailor and mobile credit cards seller and money exchanger.

Table3: Availability and composition of dietary elements in different location under study

District	Sample Size	Mean of HDDS	Abundant Dietary Elements	Insufficient Dietary Elements
Bamyan City	78	5.111	Cereals, vitamin rich-vegetables and tubers, pulse and legumes	Milk and dairy products, fish, meat, vitamin rich fruits
Yakawlang	80	4.324	Cereals, milk and dairy products, pulse and legumes, oils and fats and eggs	Vitamin rich fruits, vitamin rich vegetables, meat, fish, dark green leafy vegetables
Panjab	42	4.006	Cereals, milk and dairy products, oils and fats,	Vitamin rich fruits, vitamin rich vegetables, meat, fish, dark green leafy vegetables

Further, reference to the indicator, researcher also classified the HDDS in four different categories. Table 4 shows that, the majority of the respondent lies in the category of very low dietary diversity (58%), followed by low dietary diversity (36.5%), medium dietary diversity (5.5%), respectively. while, the percentage of the people in high dietary diversity category was zero. Almost all of them are in two first classes which indicate very low and low dietary diversity. Only 5.5% of them are in medium dietary diversity, even no one is in the fourth category.

Table4: Actual score of HDDS from the study area

HDDS Score	Number of People	%	Category	Interpretation
0-3	116	58	Very Low Dietary Diversity	Indicates poor diet quality and restricted food access

4-5	73	36.5	Low Dietary Diversity	Suggests a repetitive diet with potential micronutrient deficiencies
6-8	11	5.5	Medium Dietary Diversity	Reflects moderate diet variety and some nutrient access
9-14	0	0	High Dietary Diversity	Signifies good diet variety and likely sufficient nutrition access

High HDDS

High HDDS ranges between (9-14) which indicates that households have adequate access to a diverse array of food groups and have greater chance of fulfilling the micronutrient requirements. The people who fall in this group are not likely at risk of malnutrition and links with food security. The calculation of HDDS showed that in the study area no one is in this category which is not good news for the country and it is an alarm for policy makers and international organizations.

Low HDDS

The range of low household dietary diversity a score lie between (0-5) which represents that household have restricted access to diverse food in their diet and signifies poor dietary quality. The low HDDS indicates that these groups of the people are more likely at risk of malnutrition and are connected with food insecurity. The HDDS, after the computation of variables in SPSS showed that 94.5 % of the disables population is between (0-5) which proves that disabled people are food insecure. Policy makers and international agencies pay more attention to this group of people.

Discussion

Human being needs different micro and macro nutrients in order to fulfill the daily dietary requirements. These nutritious elements are found in various sources. Indirectly food security means existence of these elements in dietary system. These ingredients are classified in

14 different food groups. In this study Household Dietary Diversity Score (HDDS) has been used to measure the existence of these components in diet of disabled people. When definition of food security is stated, it says all people, it does not exclude any part of the society, so disabled people are one of the most vulnerable parts of a nation who need adequate nutritious food to fulfill daily dietary needs. Literatures showed that disabled people have limit access to the health care services and livelihood facilities. Other researchers stated that that most of Afghans are food insecure, while this study shows almost 95% of the disabled people have low HDDS. Some of them have enough access to cereals and milk while some of them have adequate access to vitamin rich fruits and vegetables. Majority of them do not have access to fish, meat, egg and sweets.

Conclusion

Most of Afghans have been food insecure for many recent decades. Afghanistan residents have experienced long period conflicts, so the number of disabled people is very high. Among different types of disabilities, people with physical disabilities face with various challenges including food insecurity. A high number of disabled populations are adults between 25-45 years old. Even some of the disabled people had an occupation to afford the life expenditures. The usual businesses for disabled people are tailoring, shoemaking and selling and transferring credit cards and exchange activities. Generally, employment opportunities are limited in Afghanistan, this negative phenomenon has affected disabled population, so absolute majority of them are unemployed. This study highlights the thoughtful challenges faced by people with disabilities particularly those who suffering from physical disabilities, who have been left as a legacy of war and continues political instability during the past four decades in the country. Their elimination from social and economical participation not only deepens their vulnerability but also hinders broader recovery and development efforts. These challenges are further intensified by widespread food insecurity, which disproportionately affects this marginalized group by restricting their dietary and nutritional intakes. Addressing their needs requires comprehensive policies, targeted interventions, and integrated supporting strategies to ensure that no disabled population is left behind in post-war recovery and stability efforts.

Article Publication Details

This article is published in the **UAR Journal of Multidisciplinary Studies (UARJMS)**, ISSN 3049-4346 (Online). In Volume 1 (2025), Issue 8 (October)

The journal is published and managed by **UAR Publisher**.

Acknowledgements

We sincerely thank the editors and the reviewers for their valuable suggestions on this paper.

All authors read and approved the final manuscript.

Data availability

No datasets were generated or analyzed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable. This study did not involve human or animal subjects.

Funding

The authors declare that no funding was received for this work.

Competing interests

The authors declare that they have no competing interests.

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