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Barriers perceived by individuals with physical disabilities regarding access to water, sanitation, and hygiene facilities

By

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Abstract

The 2030 Sustainable Development Goal (SDG) seeks to accelerate global development inclusive of people with disabilities and marginalised groups. SDG Agenda Goal 6 acknowledges disability as a key factor that must be overcome to provide everyone with access to safe water, adequate sanitation, and hygiene (WASH) facilities. People with disabilities encounter various obstacles in accessing sanitation, hygiene, and water facilities including physical, organisational, psychological and attitudinal barriers (Wilbur, 2022). Access to proper WASH facilities reduces illness, incapacity, and poverty. Clean water and proper sanitary facilities are often out of reach for people with disabilities in developing nations. A limited number of studies have been conducted to study the sanitation and hygiene needs of people with physical limitations. In light of this, the current study evaluated the sanitation and hygiene conditions of individuals with physical impairments residing in the district of Tiruchirappalli, as well as their unique challenges in accessing WASH facilities. Thirty persons with physical disabilities were sampled using basic random sampling. Case Study Analysis and Percentage analysis were performed. The study findings state that most of the WASH services were inaccessible to individuals with physical limitations. The case study analysis revealed that inaccessible sanitary facilities pose psychological, socioeconomic and health threats to individuals with disabilities. PwD who have access to suitable WASH facilities are more inclined to contribute to society, according to the findings of discussions and interviews held in focus groups. Barrier-free toilets can be advantageous for individuals with or without disabilities, as well as the elderly, the ill, minors, and pregnant women. The imperative of establishing universally designed and accessible WASH facilities is a crucial step towards fostering an equitable society that caters to the fundamental needs of individuals with disabilities.

Keywords: WASH facilities, Persons with Disabilities, Access, Sustainable Development Goal

Introduction

The phenomenon of disability is acknowledged as a pervasive issue that must be taken into account when pursuing the objectives of the United Nations' Sustainable Development Goals (SDGs) Agenda, with the aim of achieving them by the year 2030. The SDG Agenda is commitment to “leave no one behind” including Persons with disabilities (PwD) and other marginalised groups (Mactaggart et al., 2018) . The UNICEF report on Water, Sanitation, and Hygiene (WASH) policies for individuals with disabilities, discovered that a staggering 884 million individuals lack access to clean water, while over 1 billion individuals lack access to adequate sanitation facilities (UNICEF, 2013) . In accordance to a World Health Organization,2017 analysis individuals with disabilities account for 15% of the global

population and face greater barriers when accessing water, sanitation, and hygiene services (WHO & UNICEF,2017; UN,2015). Barriers in the form of infrastructural, social, interpersonal, and attitude issues make it difficult for people with disabilities, especially those living in underdeveloped countries, to access water, sanitation, and hygiene (Kumwenda, S.,2019). PwD may resort to unhygienic and perilous behaviours, such as crawling on the pavement surrounding latrines, engaging in public defecation to avoid discrimination, or limiting their dietary and hydration intake to avoid the need to use latrines facilities, due to inadequate availability of inclusive amenities (CDC,2019; Disability, 2023). The utilisation of universal design principles to improve the accessibility of WASH facilities confers advantages to the entire populace, encompassing persons with disabilities (Universal Design Principles | Disability Access & Compliance, n.d.). The objective of this research was to investigate the hindrances that impede the accessibility of Water, Sanitation, and Hygiene amenities for individuals with disabilities, and document the viewpoints of this marginalised cohort.

Need for the study

The quantification of the global disease burden resulting from insufficient water and sanitation services is commonly accomplished through the utilisation of disability-adjusted life years (Prüss-Ustün et al., 2019). The ramifications of inadequate access to clean water and basic sanitation for individuals with physical, cognitive, sensory (including blindness and hearing loss), or mental illness, affects billions of people are frequently overlooked and underexplored (Bisung & Elliott, 2016). The extent, to which insufficient availability of WASH facilities affects the psychological and economic well-being of individuals with impairments, as well as their families and carers, is not fully understood. (Noga & Wolbring, 2012), and the existing data is limited. It is imperative to include individuals with disabilities in all programmes, including WASH, in a proactive manner. This is due to the increasing amount of research that has established a strong correlation between individuals with disabilities and heightened levels of inequality and disempowerment (Hosseinpoor et al., 2013).

Providing individuals who have impairments with safe potable water and accessible toilets is an intricate concern. (Groce et al., 2011; Redman-MacLaren et al., 2018) that warrants multi-faceted investigation. People with disabilities frequently encounter obstacles when endeavouring to obtain services related to WASH facilities (Calderón-Villarreal et al., 2022). As per the WASH 2015 estimations, insufficient water and sanitation facilities account for 1.5% of the present worldwide disease burden (WASH-related Burden of Disease, 2020). The challenges faced by PwD and their families in accessing WASH amenities continue to endure (White et al., 2016). The purpose of this study is to evaluate the obstacles that people with impairments and their families face while trying to acquire access to WASH services.

Review of Related Studies

The Sustainable Development Goals (SDGs) established ambitious targets with the objective of providing universal access to water and sanitation by 2030. Improving access to water, sanitation, and hygiene (WASH) services is crucial for addressing access disparities faced by people with disabilities (Goal, 2023). Dassah & Bisung, 2023 analysed the accessibility of WASH facilities for persons with physical impairments. The analysis revealed that environmental, social, and institutional barriers hinder the accessibility of WASH services for people with disabilities. The investigation called for urgent action to expand on this knowledge base and improve WASH services offered in developing countries.

Women, urban dwellers, and those with lower incomes and education faced more hurdles in accessing WASH facilities (Sahoo et al., 2022). This study demonstrated the key hurdles to WASH access include the inability to adequately communicate WASH needs, discomfort experienced, and incontinence. The WASH sector needs a deeper comprehension of these challenges in the context of a worldwide push for more equitable access (Lue et al., 2023).

Inadequate home and social sanitation services have been linked to child malnutrition and poor cognitive development, according to research by Lisa Cameron, 2021. These results suggest that access to a toilet and the likelihood of living in a community where most people have access to a toilet are major factors in a child's ability to thrive and develop.

Mactaggart et al., 2021 stated that the prerequisite of sufficient water, sanitation, and hygiene facilities is fundamental for promoting health, economic and overall welfare. However, it has been observed that women with disabilities frequently encounter unfulfilled WASH needs. In seven out of eight intra-household indicators, they exhibited a higher probability of encountering obstacles based on statistical analysis. For people with disabilities (PwD) who menstruate or suffer from incontinence, it came to light that the concerns of stigma associated to WASH, dependence on informal carers, and limited funding for WASH were of the greatest concern. The findings of this research have provided evidence in favour of progressing towards WASH designing that is inclusive of gender and disability in the region.

The results of the audit conducted on household latrines suggest that enhancing sanitation amenities to cater to the distinct needs of individuals who have impairments may require a substantial commitment of temporal and monetary resources (Chifundo Kayoka, 2019). Mactaggart (2018) reported that between 23% and 80% of individuals with disabilities reported facing challenges in accessing water from their household taps. Additionally, these individuals expressed difficulties in utilising the same lavatory facilities as their family members due to their disabilities.

The accessibility of WASH amenities was observed to have an impact on all respondents, with approximately 33% of the hindrances reported by individuals with disabilities being attributed to this factor (Kuper et al., 2018). Participants identified fifty barriers to WASH participation. Women, urban dwellers, and those with lower incomes and education faced more and more hurdles. This study demonstrated that key hurdles to WASH access include the inability to adequately communicate WASH needs, discomfort experienced, and incontinence. The WASH industry needs a deeper comprehension of these challenges in the context of a worldwide push for more equitable access.

Research indicates that a significant proportion of individuals with impairments lack access to WASH services on a large scale (Mactaggart et al., 2018). Individuals suffering from disabilities encounter significant disparities in their ability to access WASH facilities, primarily due to their heightened susceptibility to experiencing financial and psychological challenges. (Scherer et al., 2021). The study participants identified a total of 50 obstacles to the implementation of Water, Sanitation, and Hygiene (WASH) initiatives. These barriers encompassed a range of issues such as inadequate accessibility, insufficient regard for individual hygiene, reluctance to adopt new practises, and apathy towards engaging in WASH interventions (Tseole et al., 2022).

Addressing the diverse range of WASH restrictions, needs, and outcomes poses a challenging task for both practitioners and researchers (Piper et al., 2017). Hardware

modifications can enable individuals with diverse impairments to gain entry to environments that were previously inaccessible (Wellecke et al., 2022).

Research Gap

Multiple studies have shown that the quality of water, sanitation, and hygiene (WASH) in low-income countries is, on average, quite poor. Accessibility to adequate WASH services and disability-related obstacles can be challenging for individuals who have impairments in nations with low incomes. The outcome demonstrates that impairment and poverty are mutually reinforcing. Disability increases the probability of poverty, while financial inequality increases the probability of disability. Disability causes economic inequality, which exacerbates an already significant health burden.

Legislation must therefore address both the financial and societal effects of WASH accessibility issues in order to be effective. Numerous studies have emphasised the difficulties that people with physical limitations face when attempting to utilise a hand pump or a standard toilet to get past obstacles to basic sanitation access. People who have impairments experience a direct impact on all aspects of their well-being, including their mental and physical health, as a direct result of the accessibility and general availability of WASH facilities, according to research. Thus, a research analysing the obstacles faced by people with disabilities is highly warranted.

Objectives

The objective of this study is to

- Evaluate the hindrances that impede individuals with disabilities from obtaining sufficient water, sanitation, and hygiene (WASH) services.
- Examine the potential disparities in access to water, sanitation, and hygiene needs based on disability type, gender, and domicile. The research aims to determine if there is a statistically significant difference among these variables.

Hypotheses

- Persons with physical disabilities have equal access to adequate water, sanitation, and hygiene needs at the household and individual level
- Persons with physical disabilities have equal access to water, sanitation, and hygiene needs irrespective of their type of disability, gender and domicile in the selected areas of Tiruchirappalli.

Methodology

The efficacy of WASH initiatives in catering to the requirements of individuals with disabilities is reliant upon a comprehensive understanding of their needs, the challenges they encounter, and the coping mechanisms they employ. The purpose of this research was to enhance comprehension of the obstacles encountered by individuals with disabilities in the Tiruchirappalli district of Tamilnadu, India, with respect to accessing diverse WASH amenities.

The study also examined the extent to which individuals with disabilities perceived WASH as both the social and economic issue. The study employed various research methods;

including interviews, focus group discussions, and case study analysis, to examine the viewpoints of the participants regarding WASH facilities.

Sample and sampling design

The research was carried out in three specifically chosen blocks within the Tiruchirappalli district. The participants in this study were chosen from the dataset obtained from the District Differently Abled Welfare Office. The process of data collection was conducted utilising indigenous languages.

The study utilised a targeted sampling approach to collect data from a cohort of 30 participants who have physical disabilities. Dimensions of sanitation facility, ownership, including water supply, kind of sanitation, personal vs. public restrooms, and accessibility concerns, were evaluated. The participants were deliberately selected through the utilisation of a simple random sampling method. The objective of the sample selection process did not prioritise achieving statistical accuracy. The selection of the participants within each block was carried out using a two-step process, which commenced with the collaboration of "key informants" such as the District Differently Abled Welfare officer, village chiefs, representatives of Non-Governmental Organisations (NGOs), and other service providers.

Tools used

Following an adapted version of the WHO/UNICEF JMP Core Questions on Drinking Water and Sanitation, data was gathered.

Table 1: *Characteristics of the Sample*

Type of Disability	Physical Impairment	
Total sample	30 no	
Age	Range	6–80 years
	Mean age	33 years
	Under 18 years	3
	Over 18 years	27
Gender	Male	19
	Female	11
Geographical location	Urban	5
	Peri-urban	15
	Rural	10
Employment status	Regular formal employment	2
	Informal work	8
	Unemployed	13
	Student	3
	School-age but not at school	4
	Retired	0

Data Collection

Information was gathered through visits to the sites, interviews, and participant observation.

a) Analysis of Secondary Sources

Secondary sources were analysed to better comprehend the availability of WASH facilities. Furthermore, the primary objective of the scholarly review was to enhance the discourse surrounding the outcomes of the interview and field trip investigations.. Journal articles and reports examining the WASH requirements of PwD were the primary focus of the literature review.

b) Interaction with Stakeholders

An interview with stakeholders hailing from a variety of backgrounds was carried out in a semi-structured format. The questions were tailored to the specific areas of expertise of the many parties involved. In-person meetings were used to reach out to stakeholders. The interviews were conducted with the participants' informed agreement, and participants were given the opportunity to maintain their anonymity if they so desired.

c) Visit

Members of the research team visited the location twice: once on a guided tour led by the Organization, and once on their own. The trips were meant to record the opinions of individuals with physical disabilities and observe the condition of WASH facilities for them.

Data Organization and Analysis

The researcher conducted in-depth interviews via audio recording, translation, transcription, and thematic analysis following the six-step analysis process defined by Braun V, 2006. Participants were interviewed and the transcripts were double-checked to ensure correctness. After having each of the transcripts of the interviews translated into English, they were subjected to thematic analysis. Data was also gathered with the use of photographs and videos. Video footage of WASH activities and video assessments were annotated and coded. Interview transcripts were organised in a database alongside data gathered from respondents' free-form descriptions and evaluation of challenges. There was no difference in procedure for Photo voice. Age, gender, domicile, employment position, and handicap status were used to categorise the anonym zed data. Researchers categorised the given answers into three classes: barrier, priority, and WASH action. The complete dataset was analysed to identify emerging themes and then refine those topics.

Informed Consent

Participants gave their consent after being fully informed. Guardians consented to individuals less than 18 years of age. Interviews with care-takers and participants with impairments were done independently and also in privacy in the individual's residence whenever appropriate.

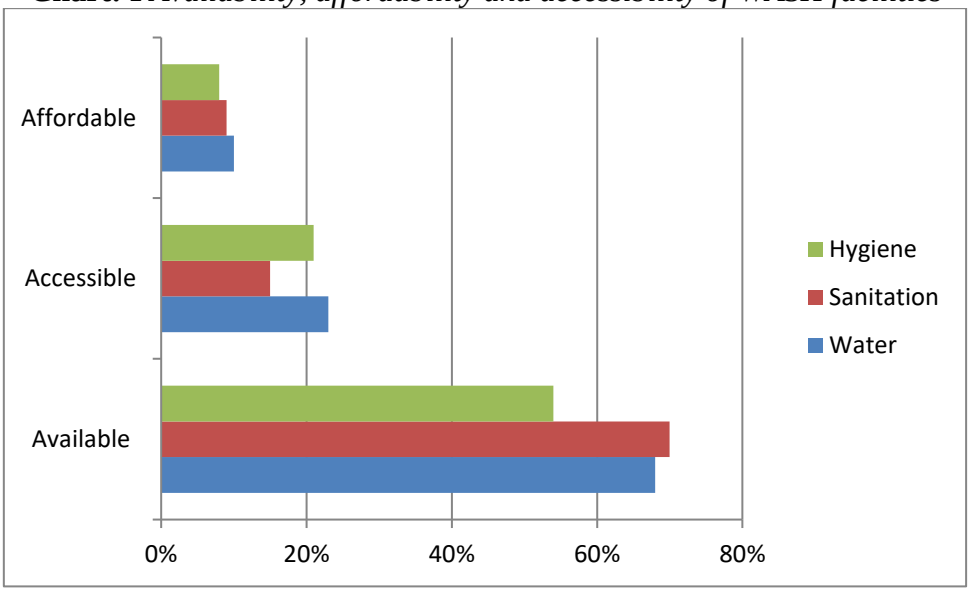
Findings of the Study

The questionnaire to analyze the WASH barriers consisted of 32 questions divided into three dimensions. The water dimension had six questions, seven questions were asked related to sanitation and hygiene and nine questions were asked related to hygiene

Table 2: *Percentage analysis of Water, Sanitation, and Hygiene facilities*

	Available	Accessible	Affordable
Water	68%	23%	10%
Sanitation	70%	15%	9%
Hygiene	54%	21%	8%

Chart: I *Availability, affordability and accessibility of WASH facilities*



According to the conclusions of the paper that did the percentage analysis, a sizeable percentage of people who have physical limitations have access to WASH domains. However, the lack of pathways, rails, accessible infrastructure, attitudes, and environmental barriers pose a challenge to their accessibility. The affordability of WASH services presents a significant obstacle. Regarding WASH facilities, a limited number of individuals possess the requisite means to construct the specialised infrastructure essential for acquiring access to these amenities within their households. Several participants reported that the absence of convenient toilets in both private and communal spaces had detrimental effects on their economic, emotional, and physiological well-being.

Inferences from the Interview

A one-on-one interview was conducted with individuals with disabilities to analyse their distinct requirements for accessing WASH facilities. Prior to the commencement of the study, the participants were provided with informed consent, and in select instances, consent was obtained from caretakers or family members. The study involved a sample of 30 individuals with disabilities who shared their diverse obstacles in accessing WASH services.

The data analysis conducted in the study identified three dominant themes, namely attitudinal, environmental, and economical, as reported by the participants through direct statements.

The majority of participants indicated facing challenges when utilising the shared water dispensing units. Persons who rely on mobility devices or crutches frequently face obstacles when seeking to utilise water and sanitation amenities owing to the inaccessibility of pathways, faucets, and lavatories. Furthermore, the act of drawing water requires a greater expenditure of energy and a longer period of time compared to their normal counterparts.

The study revealed that a significant proportion of participants opted to utilise a pail and a plastic container as their preferred means of water transportation, which are commonly classified as assistive devices. The bottles were transported by the participants utilising the footrests of their wheelchairs.

"The occurrence of the rainy season results in the recurrent formation of muddy and slippery roads, thereby impeding the ease of mobility for individuals who rely on wheelchairs. Due to my tendency to frequently spill water, which poses a potential hazard to my safety, it is necessary for me to receive assistance from an individual following closely behind me when traversing steps or traversing a muddy pathway".

The presence of uneven surfaces, ramps that were not properly constructed and inadequate space for manoeuvring a wheelchair posed significant challenges for individuals seeking to access the WASH facilities.

"The limited spatial capacity within the lavatory poses a significant challenge for me as a wheelchair user. The doorway is too narrow for a person using a wheelchair to get through it. Furthermore, the limited space available for post-toilet water usage necessitates my preference for utilising the water point's ample area for bathing and cleansing purposes following each instance of toileting. Frequently, my hands and garments become soiled due to exposure to faecal matter and urine"

Individuals with disabilities often perceive themselves as imposing an excessive financial burden on their families due to the need for ongoing medical care.

"As an entrepreneur, I am currently managing a retail establishment located within a market setting. As a result of the unavailability of accessible restrooms and passageways, I refrain from excreting waste throughout the day, as both of my hands are required to navigate to the restroom. I refrain from consuming food and beverages until my arrival at my place of residence during the late hours of the evening. Consequently, frequent occurrences of illness impede my ability to perform work effectively. The aforementioned experience has an impact on both my physical and mental well-being".

A significant number of individuals with severe disabilities lack a care-taker, necessitating the acquisition of independent toileting skills. This underscores the pressing need to enhance the accessibility of WASH services for individuals with disabilities.

"Women with physical disabilities may experience significant challenges during menstruation. I am entirely reliant on my family members for the procurement of water and sanitation amenities. Due to the lack of accessibility and proper illumination in the majority of public restrooms, I am unable to consistently attend work. The impact of this situation is twofold, as it has adverse effects on both my psychological well-being and physical health".

Individual Case Study Analysis

As per Case I, individuals with disabilities often encounter difficulties in accessing adequate sanitary facilities within their residential settings. A significant proportion of community sanitation facilities are not readily accessible to persons with disabilities. People who are disabled encounter a particular set of challenges on their journey to the water source because, depending on the nature of their handicap, they may need to negotiate crowded roads.

In the event that a person with disabilities (PwD) reaches a water station, it is possible that the kiosks may not be readily accessible. An example of a challenge faced by individuals who use wheelchairs is the limited accessibility to kiosk handles. Getting water from a lake or stream, for example, might be difficult because doing so frequently entails climbing or other sorts of strenuous physical activity.

As per Case II, the absence of adequate support in the facilities, coupled with the presence of high water tables and steep staircases, results in their inoperability. Restrooms frequently exhibit deficiencies in flushing mechanisms and illumination. Furthermore, the absence of ramps, handrails, and spacious entrances in facilities renders them inaccessible to individuals with disabilities. Consequently, individuals who require physical assistance encounter challenges in terms of accessing and manoeuvring through restricted spaces and facilities.

According to Case III, community centres are equipped with features that are accessible to individuals with disabilities, including wider doors, toilet rails, ramps and washbasin handles designed for children who use wheelchairs. Notwithstanding, she underscored that these modifications are extremely infrequent or non-existent within the broader populace. The individual expressed concerns regarding the barriers that arise from attitudes and discriminatory practises at the local level, emphasising the need for these issues to be addressed.

In Case IV, it was reported that a subset of individuals with disabilities are vulnerable to experiencing instances of intimidation, mistreatment, and verbal aggression. The speaker additionally asserted that a subset of the populace holds the belief that individuals with disabilities should not utilise existing water resources due to the notion that disability is a contagious condition.

As per the findings of Case V, there exists a prevalent negative perception within the community towards individuals who exhibit behavioural disabilities, necessitating a strategic approach to effectively tackle this issue. It is possible for people's perspectives to change if more people are made aware of the unique challenges faced by people with disabilities and given the opportunity to learn more about those challenges.

Reflection on the results

People who have impairments have a difficult time gaining access to WASH services of a high level, as indicated by the interviews conducted with many of the individuals concerned. It is absolutely necessary at this point to take action in order to address these difficulties. The widespread presence of contaminated groundwater as a result of improperly functioning septic tanks and pit latrines is a barrier to the development of more effective sanitation practises. There has been less of an emphasis placed on the accessibility of hygiene services in comparison to water and sanitation services. People with disabilities are unable to access mainstream WASH resources due to ecological, behavioural and societal obstacles.

Numerous individuals who were interviewed and have disabilities emphasised the noteworthy social and physical hindrances that individuals with disabilities encounter while attempting to access WASH facilities. Individuals with disabilities who require extended time at public WASH facilities may encounter discrimination from the broader community. Consequently, individuals with disabilities frequently resort to unhygienic and demeaning behaviours such as open defecation due to inadequate availability of toilets or latrines. The

discourse primarily revolved around the negative impact of restricted bodily autonomy and reliance on external assistance for carrying out rudimentary activities on one's sense of dignity.

Recommendations

People with disabilities still encounter obstacles when utilising water, sanitation, and hygiene facilities, despite the government's best attempts to improve service delivery. Merely augmenting the quantity of water kiosks is insufficient; it is imperative to modify them to ensure their accessibility. In order to enhance accessibility, it is imperative to provide appropriate amenities such as sufficient illumination, grab bars in restrooms, expanded doorways, inclines for mobility, heightened seating, and handgrips for washbasins. In addition to increasing people's access to clean water sources and sanitary restrooms, one of the most important goals of any WASH-related initiative ought to be educating communities on the importance of maintaining good personal hygiene.

Barrier-free disabled-friendly environments, a society and participatory approach through consultation with local NGOs, communities, and extensive accessibility through sensitization, scientific, and hardware alternatives are all proposed for enhancing WASH services for individuals with disabilities in order to guarantee that 'no one is left behind ' while ensuring all individuals enjoy equal rights and opportunities.

Conclusion

The present research endeavours to assess the accessibility of Water, Sanitation, and Hygiene (WASH) services for persons with disabilities through a thorough review of existing literature, extensive consultations with subject matter experts, meticulous observation of the situation, and in-depth interviews with people who have impairments and their families. The researcher analysed prevalent obstacles and ongoing Water, Sanitation, and Hygiene (WASH) initiatives. The primary obstacles that impede the delivery of WASH services to individuals with disabilities are environmental and physical impediments, as well as emotional and interpersonal impediments. Despite the existence of various initiatives and measures implemented at the national, regional, communal, and domestic levels, research has shown that the majority of Water, Sanitation, and Hygiene (WASH) projects primarily focus on expanding access to the general population, with limited consideration given to addressing the specific needs of individuals with disabilities. The research findings suggest that it is crucial to involve a representative sample of individuals with disabilities in all stages of providing WASH services, such as planning, implementation, and assessment.

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