

Variables for Inclusive Architectural Design of Arenas for Recreation among the Specially Abled in Owerri, Nigeria

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Abstract- *The research sought to assess the variables that promote inclusivity for persons with disabilities (PWDs) in recreational arenas in Owerri, Nigeria, and the level of usability of recreational arenas among the specially abled in the study area. The study adopted mixed-method research design: the data for the quantitative component was obtained from direct operationalisation of the table of variables definition, while the data for the qualitative aspect was obtained from structured interviews of building professionals who had experience in the design and operation of recreational arenas in the study area. Chi-square and Kendall's tau-b statistical tools were deployed to the relationships and the nature of association of the variables in focus. In Hypothesis 1, which test states that "there is no significant relationship between inclusive architectural design variables and level of useability of recreational arenas by the specially abled in Owerri" the result of the analysis showed p-value of 0.00 which indicates statistically significant association, the Kendall's tau-b correlation analysis was used to test the nature of the association, and the analysis showed a correlation coefficient value of 0.772 with a significance value of 0.00, revealing highly significant relationship which is moderate. In Hypothesis 2, which states that "architectural accessibility features do not significantly influence useability of recreational arenas in Owerri by persons with disabilities (PWDs)", the Kendall's tau-b correlation analysis was also used to test the nature of association among architectural accessibility variables and useability of recreational arenas in Owerri by persons with disabilities (PWDs). The result of the analysis showed a correlation coefficient value of 0.887 with a significance value point (p-value) of 0.00, showing it is highly significant. The null hypothesis was rejected and the alternate accepted which states that architectural accessibility features significantly influence useability of recreational arenas in Owerri by persons with disabilities (PWDs).*

Keywords: *inclusive, architectural, design, arenas, recreation*

1.1 Background to the Study

Multiple studies report that recreation has crucial role in various aspects of human life including physical and emotional well-being, social interactions, and mental health dimensions (Ibhafidon, et al., 2026, Mistry, 2017). Arenas for creation such as sports halls, stadiums, and event centers provide environments for social interaction, leisure, and competitions. However, access to these facilities remains a major challenge for persons with disabilities (PWD's) often referred to as the "Specially abled" (Wachakun, et al. 2024). The World Health Organization(WHO, 2018) estimates that over 1billion people worldwide live with some form of disability, while National Bureau of Statistics (NBS) 2025, reports that about 6% of Nigeria's population which is (approximately 11 million persons) have some form of disability. Notwithstanding the enactment of the discrimination against persons with disabilities (Prohibition) Act, 2018, many public buildings in Nigeria, including recreational arenas have not been designed or redesigned to accommodate the needs of the specially abled.

The Disabilities (Prohibition) Act 2018 criminalises discrimination, introduces harsh penalties, and establishes long-term mandates for public spaces and employment. The law granted a 5-year grace period for existing public infrastructure and transport fleets to adapt, while it is to be noted that the transitional deadline officially elapsed in January 2024. Although the law sets a wholistic blueprint, actual nationwide implementation faces legal and logistical impediments because the Act does not automatically apply at the state level: only 25 out of the 36 states in Nigeria have successfully passed equivalent state-level disability laws, while 10 states are yet to

I. INTRODUCTION

domesticate the legal protections (Ejim & Okoye, 2025).

Owerri, the capital of Imo State, has experienced rapid urbanisation with the development of several recreational facilities. Yet, anecdotal evidence and preliminary observations suggest that most of these arenas lack ramps, accessible toilets, appropriate signage, and circulation spaces for wheelchair users and other PWDs. This exclusion limits participation, reduces quality of life, and violates principles of equity and universal design (Kaykajabari, 2024).

Inclusive architectural design ensures that built environments are usable by all people, to the greatest extent possible, without barrier. It focuses on removing physical, sensory, and social barriers creating cognitive spaces that welcome people of all ages, genders, and abilities. Given the gap in literature on inclusive design of recreational arenas in South Eastern Zone of Nigeria, this study seeks to identify the key architectural variables that influence the inclusivity of arenas for the specially abled in Owerri (WHO, 2018; Ejim et al., 2025).

1.2 Statement of the Problem

Recreational arenas in Owerri are primarily designed for able-bodied users, with little consideration for accessibility standards. Common barriers include: steep ramps, narrow doorways, absence of tactile signage, inaccessible seating, and inadequate emergency evacuation provisions. These design flaws restrict participation of the specially abled and contradict national and international disability laws (ILO, 2018; Wachukwu, et al., 2024).

Multiple studies, (Sahu, et al., 2026; Rueles, 2026; Ogunbodede, et al., 2025; Marquardt, 2024; Soken-Huberty, 2021; Dirksen, 2015; Paron-Wildes, 2013) have examined accessibility in schools, hospitals, and religious buildings in Nigeria, there is limited empirical data on the specific architectural variables that affect inclusive use of recreational arenas by PWDs especially in Owerri. Without identifying these variables, architects and policymakers cannot develop evidence-based guidelines to improve inclusivity. When arenas fail to integrate wayfinding, adaptive acoustics, ergonomic circulation and equitable viewing zones, they create physical and psychological barriers, and PWDs face navigation anxiety, and systemic social isolation from community recreational activities. This study

therefore aims to investigate the key variables for inclusive architectural design of recreational arenas for the specially abled in Owerri, Nigeria with a view to developing frameworks for evidence-based guidelines for inclusive design and operation of recreational arenas in Owerri and beyond, so that PWDs will no longer be marginalised, and recreational arenas could begin to fulfil their basic role as equitable hubs for social cohesion.

1.3 Aim of the Study

The aim of this study is to assess the variables for inclusive architectural design of arenas for recreation among the specially abled in Owerri, Nigeria.

1.4 Objectives of the Study

The objectives of the study are to:

1. investigate the architectural design variables that promote inclusivity for PWDs in recreational arenas in the study area; and
2. investigate the level of usability of recreational arenas among the specially abled in the study area.

1.5 Research Questions

1. To what extent are architectural design variables required for inclusive use of recreational arenas in the study area?
2. To what level are recreational arenas in Owerri useable by the specially abled?

1.6 Research Hypotheses

H01: There is no significant relationship between inclusive architectural design variables and level of usability of recreational arenas by the specially abled in Owerri, Nigeria.

H02: Architectural accessibility features do not significantly influence useability of recreational arenas in Owerri by persons with Disabilities (PWDs).

1.7 Significance of the Study

This study is significant to: architects and planners because it will aid data-driven design framework for inclusive recreational facilities. The study will also assist government & policymakers in making informed decisions in the enforcement of the 2018 Disability Act in Imo State, while facility managers could use the findings to improve operations and programming to accommodate the specially abled. While contributing to literature on inclusive design in Nigeria, persons with disability and advocacy Groups could leverage on the study outcome to promote equal right to recreation and social participation.

1.8 Scope of the Study

The study will focus on selected public and private recreational arenas in Owerri Metropolis, Imo State. It will target PWDs, architects, and facility managers. The scope is limited to architectural design variables such as accessibility, utility, circulation, safety, and comfort.

1.9 Area of the study

The study area is Owerri Metropolis, Imo State, Nigeria, located on Latitude 5°29'N and Longitude 7°02'E. It is the capital of Imo State and comprises three Local Government Areas: Owerri Municipal, Owerri North, and Owerri West. With the passage of the disability Bill by the Imo State House Of Assembly, the Governor, Senator Hope Uzodimma signed the bill into law in June 2024, making Imo one of the states in Nigeria to domesticate the federal disability prohibition Act 2018.

Recreational arenas selected include: Three sports arenas in Owerri shall be studied. They are; Dan Anyiam Stadium, Owerri, Old Stadium, Tetlow Road, and Sports centre, Owerri.

II. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Concept of Recreation and Recreational Arenas Across literature (Clough, et al., 2016; Boudream et al., 2020;) the concept of recreation embodies freely chosen disengagement, relaxation, leisure, at self endorsed free time with numerous physiological, physical, psychological and mental health benefits to individuals and emerging economic gains for communities . while Hendeerson, (2017) reports that leisure enables the individual to turn simple free time into space for personal fulfillment, WHO (2018) posits that recreation is essential for physical and mental well-being of the individual, especially the disabled.

2.1.2 Concept of Specially Abled / Persons with Disabilities (PWDs)

Literature concerning persons with disabilities (PWDs) cuts across academic research and social theory that highlight the lived experiences and structural barriers of the persons with disabilities (PWDs) include persons with mobility, visual, hearing, cognitive, and psychosocial impairments

(Suri, 2025). According to NBS (2025) about 11 million Nigerians live with some form of disability. In Owerri, the capital city of Imo State, Nigeria, due to attitudinal and environmental barriers the specially abled face exclusion from public recreational facilities despite the domestication of the Disabilities (Prohibition) Act 2018 since 2024 by the Imo State government

2.1.3 Concept of Inclusive Architecture and Accessibility

Inclusive architecture ensures built environments are usable by all without barriers. While accessibility refers to the degree to which an environment is usable by as many people as possible. In Nigeria, accessibility is governed by the _Discrimination Against Persons with Disabilities (Prohibition) Act, 2018, the National Building Code 2006 and ISO 21542:2021). The Imo State Government demonstrated the Federal Disabilities Act 2018 in January 2024.

2.1.4 Variables for Inclusive Design of Arenas

The NBC 2006, ISO 21542:2021, the Discrimination against persons with Disabilities Act, 2018 and ADA, 2010 specify a range of requirements and recommendations that relate to the design and construction aspects of useability and accessibility of buildings during normal conditions and evacuation in the event of fire .

The standards detail the physical accessibility requirements for the specially abled for car parking, circulation (corridors and turning radii) entrances, level thresholds, and ramps.

The standards further specify safety and emergency requirments for wayfinding (tactile ground surface indicators, braille signage, high contrast, accessible evacuation refuge areas visual alarm systems, audible alarms, and minimum lighting for low vision navigation.

The third section recommends the provision of wheelchair spaces with companion seating in the arenas, and sightlines over standing spectators.

The standards recommend accessible W.Cs with grab rails, adult changing bench in the sanitary facilities, while specifying non-slip, shock-absorbing playing surfaces with adaptable equipment.

The standards specify the provision of hearing loop systems and acoustic control for the hearing impaired, visual contrast (LRV difference of 30 points between walls, floors and doors) and sensory rooms (quiet rooms for persons with autism)

2.2 Theoretical Framework

2.2.1 Universal Design Theory:

The theory proposes 7 principles: Equitable Use, Flexibility in Use, Simple and Intuitive Use, Perceptible Information, Tolerance for Error, Low Physical Effort, Size and Space for Approach and Use.(Mace, 1997) This theory is directly relevant because it provides measurable design criteria for the variables.

2.2.2 Social Model of Disability:

The theory argues that people are disabled by barriers in society, not by their impairments, while architectural barriers in arenas create disability. Removing barriers through inclusive design promotes equality.(Oliver, 2013; Murman, 2025)

2.2.3 Ergonomics and Anthropometrics:

While ergonomics as a science seeks to fit workplace products to the users needs, anthropometrics provides the data design safe, comfortable, and efficient systems based on human body measurements, including wheelchair dimensions, reach ranges, and visual angles of PWDs.

2.3 Empirical Review of Related Studies

Okafor & Umeora (2022) assessed accessibility of public buildings in Enugu and found 78% of recreational facilities were non-compliant with ramp and toilet standards. Adebayo et al. (2021) in Lagos

found that lack of tactile signage and inaccessible seating were the major barriers to stadia use by PWDs. Imrie (2012) in the UK studied inclusive design of sports arenas and identified management policy and staff training as equally important as physical design. Adewunmi (2023) in Owerri examined public parks and found no provision for accessible parking and sensory signage.

2.4 Summary of Literature Review and Research Gap

Literature shows that inclusive design is multidimensional - physical, sensory, safety, and managerial. In Owerri, recreational arenas still fall short of national and international standards. There is a need for a study that holistically identifies and evaluates architectural variables that determine inclusivity for specially abled users in Owerri, which this study seeks to address.

Methodology: This study is part of a wider research on barrier free architecture on recreational facilities in Owerri, Imo State Nigeria

III.RESEARCH METHODOLOGY

3.1 Research Design

The study adopted a descriptive survey research design with a mixed-method approach. The design combines quantitative (questionnaires, physical measurements) and qualitative (observation, interviews) methods. This approach is suitable because it allows for assessment of existing physical features and user experiences of PWDs in recreational arenas.

3.2 Population of the Study

The population consists of three groups:

Table 3.1: Population Universe for the study

S/N	Group	Population
1	Specially abled persons who use or attempt to use recreational arenas in Owerri (estimated 2,500 registered members of Joint National Association of Persons with Disabilities, JONAPWD, Imo State chapter).	2,500
2	Facility Managers / Staff of selected arenas	45
3	Registered construction professional in Imo State	120
	Total Population	2,665

Source: Research, 2026

Table 3.2: Definition of Variables

S/N	Description	Code	Measurement	Values	Categories
	Variables for measuring inclusive architectural design				

V1	Climbing entrance ramp on wheelchair untired	CERW	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V2	External walkways easy to use	EWEU	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V3	Easy to use entrance ramps	EUER	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V4	Entrances steps difficult to use	ESDU	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V5	Accessible car parking available at arena entrance	APAE	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V6	Easy to pass through doorways	EPD	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V7	Threshold at door	TAD	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V8	Corridor spacious	CS	Nominal	1-2	(1) Yes (2) No
V9	Arena signages helpful	ASH	Nominal	1-2	(1) Yes (2) No
Variables for measuring arena useability					
V10	Reserved space for wheelchair in seating area	RSSA	Nominal	1-2	(1) Yes (2) No
V11	View obstructed by person in front	VOPF			(1) Yes (2) No
V12	Play with colleagues in sporting arena	PCSA			(1) Yes (2) No
V13	Exercise equipment accessible	EEA			(1) Yes (2) No
V14	Lighting level good for me	LLG			(1) Yes (2) No
V15	Acoustic quality	AQ			(1) Yes (2) No
V16	Toilet Accessible	TA			(1) Yes (2) No
V17	Emergency evacuation routes accessible	EERA	Ordinal	1-5	(5) Strongly Agree (4) Agree (3) Neutral (2) Disagree (1) Strongly Disagree
V18	Emergency evacuation routes clearly marked	EERM	Nominal	1-2	(1) Yes (2) No
V19	Grab bar at access ramp	GBR			(1) Yes (2) No
V20	Grab bar in toilet cubicle	GBT			(1) Yes (2) No

V21	Wheelchair space in arena seating has companion seat				(1) Yes (2) No
V22	Accessible toilets spacious	ATS			(1) Yes (2) No
V23	Arena floor spaces non-slip				(1) Yes (2) No
V24	Visual contrast on signages	VCS			(1) Yes (2) No
V25	Manual wheelchair users fatigued at ramp	MWFR			(1) Yes (2) No
V26	Flat rest landings provided at directional changes of ramps	FRDR			(1) Yes (2) No
V27	Hearing loop signage provided	HLSP			(1) Yes (2) No
V28	Hearing loop provided in low noise area of arena	HLPA			(1) Yes (2) No
V29	Sensory room provided	SRP			(1) Yes (2) No

3.3 Sources of Data

The field survey instruments were obtained by direct operationalisation of Table 3.2: Variables Definition, to ensure reliability and validity of the findings. Twenty nine (29) variables were deployed in the investigation to address two research questions: *“to what extent are architectural design variables required for inclusive use of recreational arenas in the study area?, to what level are recreational arenas in Owerri useable by the specially abled in Owerri Nigeria.”*

IV. PRESENTATION OF DATA, DISCUSSION AND ANALYSIS

4.1 Data from Building Professionals:

The mean age of practice of 10 building professional (respondents) investigated was 13.7 years. 50% of the respondents had designed recreational facilities, while 50% had never designed recreational arenas. Only 0% of the respondents knew that the year of demarcation of the Disabilities (Prohibition) Act 2018 in Imo state was 2024. In collating the data on inclusive architecture and design practice of the building professionals, 50% of the respondents *“Strongly Agreed”* to usually consider persons with disabilities (PWDs), 10% responded *“Agree”*, while 40% were *“Neutral”*. In responding to familiarity

with the National Building Code (NBC) 2006, and ADA 2010, 20% responded *“Strongly Agreed”*, 10% were *“Neutral”*, 20% responded *“Disagree”*, while 50% *“Strongly Agreed”*.

10% of the respondents responded *“Strongly Agree”* on willingness of clients to pay for inclusive features, 20% were *“Neutral”*, 50% *“Disagree”*, while 20% responded *“Strongly Disagree”*.

In investigating whether lack of enforcement of building code was a major problem in Owerri, 30% of respondents *“Strongly Agreed”*, 10% agreed, 10% were *“Neutral”*, 10% disagreed, while 40% *“Strongly Agreed”*.

In Seeking to find out the most critical variables in designing inclusive recreational arena, 10% of the building professionals mentioned *“Funding”*, 10% said *“Budget Issues”*, 20% said accessibility, 10% openness, while 40% were *“Neutral”*.

In considering the order of importance of inclusive variables in the design of recreational facilities, 60% of the respondents *“Strongly Agree”* that ramp and entrance design were important, while 40% responded *“Agree”* 30% of the building professionals *“Strongly Agree”* that circulation and turning radii were important, 30% responded

“Agree”, 30% were “Neutral”, while 10% “disagree”.

While measuring the perception of importance of accessible toilets in design, 50% responded “*Strongly Agreed*”, 30% “*Agreed*”, while 20% were “*Neutral*”. “20% of the respondents in considering seating and viewing ticked “*Strongly Agree*”, 10% “*Agree*”, 20% “*Neutral*”, 30% - “*Disagree*”, while 20% repounded “*Strongly Agreed*”.

While considering wayfinding and signage, 30% responded “*Strongly Agree*”, 20% - “*Agree*”, 10%- “*Neutral*”, and 40%- “*Disagree*”. 40% of the respondents responded “*Strongly Agree*” in rating the importance of “Emergency Evacuation” in inclusive architecture of recreational arenas while 60% responded “*Agree*”. 30% of the respondents considered “Sensory considerations” as “*Strongly Agree*”, 10%- “*Neutral*”, 50%- “*Disagree*”, while 10% responded “*Strongly Disagree*”.

4.2 Data from Facility Managers/Staff

The staff demographic data of respondents in the 3 areas studied, revealed an average age of 9.5years. While 80% of the respondents indicated “*Strongly Agree*” on the arena has policy for persons’ with disabilities inclusion, 20% indicated “*Strongly*

Disagree”. 10% of the respondents disagreed that “Staff are trained on disability awareness and assistance”, while 90% “*Strongly Agree*”. While measuring regular maintenance of accessibility features, 30% of the respondents indicated “*Strongly Agree*” 20% - “*Agree*”, 10% - “*Neutral*”, 10% - “*Disagree*”, and 30% - “*Strongly Disagree*”.

In assessing “arena receives many PWDs”, 50% of the respondents indicated “*Strongly Agree*”, 1- “*Agree*”, 20% - “*Neutral*”, and 20% - “*Strongly Agreed*”, 10% of the respondents indicated “*Strongly Agree*” that they had previously received complaints about accessibility 10% - “*Neutral*”, 20% - “*Disagree*”, and 60% “*Strongly Disagree*”.

50% of the respondents were not aware of the enactment of the persons with Disabilities (Prohibition) Act 2018, 20% indicated “*Neutral*”, while 30% indicated “*Strongly Disagree*”. 30% of the respondent revealed knowledge of major constraints in making the recreational arena inclusive, 20% “*Disagree*”, while 50% “*Strongly Disagree*”.

4.3 Percentage Analysis Questionnaire Results

The questionnaire responses were analysed using frequencies and percentages. The response categories are Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD).

Table 4.1: Percentage Analysis: Questionnaire results

S/N	Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
1	Arena has policy for PWDs inclusion	8 (80%)	0 (0%)	0 (0%)	0 (0%)	2 (20%)
2	Staff are trained on disability awareness and assistance	0 (0%)	0 (0%)	0 (0%)	2 (20%)	8 (80%)
3	Regular maintenance of accessibility features	3 (30%)	2 (20%)	1 (10%)	1 (10%)	3 (30%)
4	Arena receives many PWD visitors	5 (50%)	1 (10%)	2 (20%)	0 (0%)	2 (20%)
5	Received complaints about accessibility	1 (10%)	0 (0%)	1 (10%)	2 (20%)	6 (60%)
6	Aware of 2018 Disability Prohibition Act	5 (50%)	0 (0%)	2 (20%)	0 (0%)	3 (30%)
7	Knowledge of major constraints in making arena inclusive	3 (30%)	0 (0%)	0 (0%)	2 (20%)	5 (50%)

Source: Research, 2026

Table 4.2: Percentage Analysis of Responses

S/N	Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
1	Always consider accessibility for PWDs at design stage	5 (50.0%)	1 (10.0%)	4 (40.0%)	0 (0.0%)	0 (0.0%)

2	Use universal design principles in design	3 (30.0%)	1 (10.0%)	4 (40.0%)	1 (10.0%)	1 (10.0%)
3	Familiar with ADA 2010 and NBC 2006	2 (20.0%)	0 (0.0%)	1 (10.0%)	2 (20.0%)	5 (50.0%)
4	Clients willing to pay extra for inclusive features	1 (10.0%)	0 (0.0%)	2 (20.0%)	5 (50.0%)	2 (20.0%)
5	Lack of enforcement of building code as a major problem	3 (30.0%)	1 (10.0%)	1 (10.0%)	1 (10.0%)	4 (40.0%)
6	Funding, budget, user accessibility, money, openness and accessibility	3 (30.0%)	3 (30.0%)	4 (40.0%)	0 (0.0%)	0 (0.0%)
7	Ramp and entrance design	5 (50.0%)	5 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
8	Circulation and turning radii	3 (30.0%)	4 (40.0%)	3 (30.0%)	0 (0.0%)	0 (0.0%)
9	Accessible toilets	5 (50.0%)	2 (20.0%)	3 (30.0%)	0 (0.0%)	0 (0.0%)
10	Seating and viewing	2 (20.0%)	1 (10.0%)	2 (20.0%)	3 (30.0%)	2 (20.0%)
11	Wayfinding and signage	3 (30.0%)	2 (20.0%)	1 (10.0%)	4 (40.0%)	0 (0.0%)
12	Emergency evacuation	4 (40.0%)	6 (60.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
13	Sensory considerations	3 (30.0%)	0 (0.0%)	1 (10.0%)	5 (50.0%)	1 (10.0%)

Source: Research, 2026

Key: SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree.

Hypothesis 1: There is no significant relationship between inclusive architectural design variables and level of use ability of recreational arenas by the specially abled in owerri, Nigeria.

Table 4.3
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.645 ^a	3	.000
Likelihood Ratio	50.139	3	.000
Linear-by-Linear Association	28.234	1	.000
N of Valid Cases	50		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.92.

Source: Spss output, 2026

The Chi-Square was used to test the nature of association. The result of the analysis showed p-value of 0.00, which indicates a statistically significant

association between inclusive architectural design variables and level of use ability of recreational arenas by the specially abled in owerri, Nigeria.

The null hypothesis is therefore rejected and alternate hypothesis accepted. That there is no significant relationship between inclusive architectural design

variables and level of use ability of recreational arenas by the specially abled in owerri, Nigeria.

Table 4.4
Correlations

			TIRED WHEN CLIMBING ARENA ENTRANCE	EMERGENCY EVACUATION ROUTES ARE ACCESSIBLE
Kendall's tau_b	TIRED WHEN CLIMBING ARENA ENTRANCE	Correlation Coefficient	1.000	.772**
		Sig. (2-tailed)	.	.000
		N	50	50
	EMERGENCY EVACUATION ROUTES ARE ACCESSIBLE	Correlation Coefficient	.772**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Spss, 2026

The Kendall's tau_b correlation analysis was used to test the nature of the relationship. The result of the analysis showed a correlation coefficient value of 0.772 with a significance value point (p-value) of 0.00, shows it is highly significant. It means therefore that the relationship is moderate and very significant. The null hypothesis is therefore rejected and accepts the alternative hypothesis. That there is no significant

relationship between inclusive architectural design variables and level of use ability of recreational arenas by the specially abled in Owerri, Nigeria.

Hypothesis 2: Architectural accessibility features do not significantly influence usability of recreational arenas in Owerri by persons with Disabilities (PWD)

Table 4.5
Correlations

			EASY TO PASS THROUGH DOORWAYS	EMERGENCY EVACUATION ROUTES ARE ACCESSIBLE
Kendall's tau_b	EASY TO PASS THROUGH DOORWAYS	Correlation Coefficient	1.000	.887
		Sig. (2-tailed)	.	.00
		N	50	50
	EMERGENCY EVACUATION ROUTES ARE ACCESSIBLE	Correlation Coefficient	.887	1.000
		Sig. (2-tailed)	.00	.
		N	50	50

Source: Spss, 2026

The Kendall's tau_b correlation analysis was used to test the nature of the relationship. The result of the analysis showed a correlation coefficient value of 0.887 with a significance value point (p-value) of 0.00, shows it is highly significant. It means therefore that the relationship is moderate and very significant.

The null hypothesis is therefore rejected and accepts the alternative hypothesis. That Architectural accessibility features significantly influence usability of recreational arenas in Owerri by persons with Disabilities (PWD)

Table 4.6
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.861 ^a	12	.008
Likelihood Ratio	34.208	12	.001
Linear-by-Linear Association	.829	1	.363
N of Valid Cases	50		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .24.

Source: Spss, 2026

The Chi-Square was used to test the nature of association. The result of the analysis showed p-value of 0.001, which indicates a statistically significant association between architectural accessibility features on usability of recreational arenas in Owerri by persons with Disabilities (PWD)

The null hypothesis is therefore rejected and alternate hypothesis accepted. That architectural accessibility features significantly influence usability of recreational arenas in Owerri by persons with Disabilities (PWD)

oof association, The result of the analysis showed p-value of 0.00 which indicates a statistically significant association, hence the null hypothesis was rejected and the alternate accepted. The Kendall's tau-b correlation analysis was used to test the nature of the association. The result of the analysis showed a correlation coefficient value of 0.772 with a significant value point (p-value) of 0.00, revealing that it is highly significant and the relationship is moderate.

The Kendall's tau-b correlation analysis was also used to test the nature of association among architectural accessibility variables and useability of recreational arenas in Owerri by person with disabilities (PWDs). The result of the analysis showed a correlation coefficient value of 0.887 with a significance value point (p-value) of 0.00, showing it is highly significant. The null hypothesis was rejected and the alternate accepted which states that architectural accessibility features significantly influence usability of recreational arenas in Owerri by persons with disabilities (PWDs).

V. CONCLUSION

The research into the variables for inclusive architectural design of areas for recreation among the specially abled in Owerri, Nigeria shows that recreational arenas in the study area had hither to be designed and operated primarily for able-bodied users with little consideration for accessibility standards. There design flaws restrict participation of the specially abled and contradict state, national, and international disability prohibition laws.

The main findings of the study are that there is a significant relationship between inclusive architectural design variables and level of useability of recreational arenas by the specially abled in Owerri. The Chi-square was used to test the nature

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