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Building Regulations and Accessibility of Building Infrastructure by Physically Challenged Persons in Meru Town, Meru County, Kenya

Mwirigi James Gituma

Master Degree Student, University of Nairobi, Meru Extra Mural Centre, Meru, Kenya

Kiarie Antony Kimemia

Part-time Lecturer, University of Nairobi, Meru Extra Mural Centre, Meru, Kenya

Rambo Charles

Senior Lecturer/Professor, Department of Extra Mural Studies, University of Nairobi, Meru, Kenya

Abstract:

Though global governments have enacted various laws expressed through building codes, standards and local regulations, accessibility to both privately owned and public buildings infrastructure still is a major problem bedeviling physically challenged persons. Specifically this study investigated the effect of building regulations on accessibility of building infrastructure in Meru Town, Meru County, Kenya. The study is pivoted on one theory; Resistance Disability theory. Descriptive survey research design guided the study. The study's target population comprised of 158 members of the Association of Physically Disabled of Kenya (APDK)-Meru Branch, 13County Government Planning officers and 21Consultants (Architects, Contractors and Structural Engineers).A sample size of 128 participants was used and respondents selected using Stratified and Simple random sampling techniques. Three questionnaires were prepared and used for primary data collection from sampled respondents. Quantitative data was analyzed making use of descriptive statistics while qualitative data was reported in form of narratives guided by themes under study. The study established that the non-existence of building regulations on provision of grab rails in toilets and light doors in public housing, wide aisles in education facilities and provision of disabled car parks in recreation facilities all negatively affected accessibility to building infrastructure by physically challenged persons. Existence of building regulations on curb cuts in education facilities also affected building infrastructure accessibility. The study concluded that the non-existence of effective and sufficient building accessibility regulations adversely affected the accessibility of building infrastructure by physically challenged persons in Meru Town. The study recommends that the National Construction Authority (NCA) through its construction supervisory role, undertakes enforcement of Article 54 of the 2010 Constitution of Kenya and the Persons with Disability Act of 2003 to enhance physically challenged persons' accessibility of building infrastructure.

Keywords: Accessibility, building infrastructure, building regulations, curb cuts, grab rails, physically challenged persons, wide aisles

1. Introduction

According to the United Nations, Convention on the Rights of Persons with Disabilities (CRPD), around ten per cent of the world's population or 650 million, live with physical disability and they are world's largest minority. Imrie, (2012) the concept of accessibility is hinged on the idea that everyone has equal access to the built environment with no discrimination based on one's level of ability. It can be defined as being the opportunity that an individual, at any given location and of any given ability, possesses to take part in a particular activity or a set of activities within the built environment. Accessibility is therefore mainly about the Reach, Enter, Circulate and Use (RECU) principle (Imarie, 2012). The Standard Rules on Equalization of Opportunities for Persons with Disabilities in 1993 and the Convention on the Rights of Persons with Disabilities in 2006. The convention stipulates that signatory states must identify and eliminate obstacles and barriers to accessibility in buildings and other types of physical environment (United Nations, 2006). In the United States of America (U.S.A) Burns and Gordon, (2010) reported that disability legislation such as the Fair Housing Act did lead to more accessible building infrastructure for physically handicapped persons through the installation of wheelchair ramps, sliding doors and grab rails in lavatories in old buildings. In Canada, Sanderson, (2006)reported on two building regulations; the Ontarians with Disabilities Act 2001 (ODA) and the Accessibility for Ontarians with Disabilities Act 2005 (AODA) which required that both public and private building infrastructure be accessible to physically handicapped persons contributing to the renovation of old buildings for the installation of wheelchair ramps and sliding doors. In the United Kingdom (U.K) Prideaux, (2006) reported that the Disability Discrimination Act (DDA) of 1995 did lead to the renovation of old building infrastructure that witnessed the introduction of ramps, wider doors and grab rails in lavatories making buildings accessible by handicapped persons on wheelchairs. In Ireland, Goodall, (2010) also reported that the Disability

Discrimination Act (DDA) of 1995 had led to the construction of new building infrastructure that was more accessible to physically handicapped persons and the renovation of old buildings to include features such as; ramps, wider lavatory doors, wider principal entrances and reserved parking for the physically handicapped. Priestley, (2013) reported that The Building Code 2012 (Bouwbesluit) requiring that both public and private buildings be more accessible had witnessed renovations in old buildings leading to the installation of ramps and sliding doors and the construction of more inclusive built environments in The Netherlands.

Scholars in Asia have also reported on different factors that create barriers to the accessibility of building infrastructure by physically handicapped persons. In China, Guozhong, (2006) reported that the Code for Design on Accessibility of Urban Roads and Buildings (JGJ-2001) that requires buildings to have wheelchair ramps, sliding doors, less steep staircases and spacious lavatories has been instrumental in making more buildings accessible for physically handicapped persons. In the Philippines, Tabuga, (2013) reported that the enactment of the Magna Carta for Persons with Disability has led to the construction of more accessible and inclusive building infrastructure for physically handicapped persons in the country. Further in India Hajra and Shahla (2014) reported that the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 did lead to the construction of building infrastructure with ramps, outside opening doors, installed with elevators and less slippery floors making them more accessible to physically handicapped persons.

In Ghana, Ahiameny, Ibrahim and Ahiameny (2016) reported that despite the existence of the Persons with Disability (PWD) Act 2006 (Act 715) there was need to create an accessibility policy for disabled students in polytechnics to make more buildings in these academic institutions accessible for these students. Further, Tugli, et al., (2013) reported that students rated the lack of strict building regulations as the major cause of inaccessible buildings for physically handicapped in public universities in rural South Africa. In Zimbabwe, Mandipa, (2013) reported that the lack of building codes requiring developers to construct inclusive buildings did result to the construction of building infrastructure that lacked wheelchair ramps adversely affecting accessibility to building infrastructure by physically handicapped persons.

In Tanzania, Majinge and Stilweel, (2015) reported that despite the enactment of the Persons with Disabilities Act 9 of 2010 most building infrastructure and in particular libraries in public universities lacked wheelchair ramps, were characterized with slippery floors and lavatories that lacked grab rails making them inaccessible by physically handicapped persons. In Uganda, Nakabuye, Mukasa and Mersland (2006) reported that the lack of effective accessibility legislation has contributed to the construction of inaccessible building infrastructure in the country.

2. Statement of the Problem

Though viewed as a global problem, inaccessibility to building infrastructure is a common problem in developing countries. This problem is more severe in the middle and low- income urban areas. Inadequacy in building infrastructure facilities can be analyzed in terms of numbers, types and sizes of available building infrastructure facilities, ratios of physically handicapped persons to population. Practical accessibility is a function of not only space but also a function of availability of transportation network and economic means of utilizing available building infrastructure. Attaining these goals requires the elimination of any form of barriers that may hinder physically handicapped persons from accessing the building infrastructure facilities. This requires means of identifying area-specific barriers and develops means for objectively analyzing areas and extends of need. These barriers are as a result of various factors such as; features in the built environment, passive building regulations and codes, lack of accessibility funding and insufficient public disability awareness. In particular the existence of passive accessibility of building regulations and codes such as the Persons with Disability Act 2003 and or the non-existence coupled with laxity of authorities charged with enforcement of such regulations creates room for rouge government contractors to build inaccessible public buildings while private investors register high non-compliance with these regulations. This coupled with lack of accessibility funding creates limitations in the construction of reserved disabled parking spaces and unobstructed access routes further adversely affecting the accessibility of building infrastructure by physically handicapped persons. The accessibility building infrastructure by physically disabled persons is also negatively affected by the presence of steep stairs both at the entrance and in these buildings and the non-existence of grab rails in lavatory and enough space inhibits sanitary accommodation and elevators and wheelchair ramps adversely affects their horizontal circulation.

This research aims at addressing the shortage of facilities and accessibility features in and outside of building infrastructure such as; reserved disabled parking, wheelchair ramps and curb cuts. Stairways with double hand rails and spacious lavatories with grab rails for physically handicapped persons in Meru town.

3. Research Hypothesis

- H_0 : Building regulations do not have a significant relationship with accessibility of building infrastructure by physically challenged persons.
- H_1 : Building regulations have a significant relationship with accessibility of building infrastructure by physically challenged persons.

4. Literature Review

4.1. Building Regulations and Accessibility of Building Infrastructure by Physically Challenged Persons

In his study Prince, (2010) mentioned two legislations that were adopted as accessibility laws; Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 in the United States (U.S.A). He further observed that these two accessibility laws required that all entities such as; academic institutions, health care facilities, state public housing estates and recreation facilities that

receive federal funding maintain buildings that are accessible to physically handicapped persons (Prince, 2010). However, in his study Kane, (2009) found a significant positive relationship between adherence to ADA in a local university and accessibility to university buildings by physically handicapped students (PWMLs) in the U.S. Further, he argued that physically handicapped children found lavatories inaccessible due to narrow doors and the absence of grab rails and in some cases found lecture halls inaccessible due to narrow aisles (Kane, 2009). In another study Simonson, Glick and Mary Ellen, (2013) found evidence that a university in The U.S was compliant to ADA and that physically handicapped students (PWMLs) found most buildings accessible. They noted that main entrance doors were wide enough for wheelchair users, lavatories had grab rails and their doors were opening to the outside and libraries had ramps in both exit and entrances (Simonson, et al, 2013).

Further, in their study Roulstone and Prideaux, (2009) observed that the Disability Discrimination Act (DDA) of 1995 in the United Kingdom (U.K) and Equal Opportunities (Persons with Disability) Act (EOA) in Malta were important milestones in buildings accessibility legislation for PWMLs. They also argued that this created cordial partnerships and arrangements to institute the principle of reasonable adjustments to enhance access to new and old buildings through the installation of ramps, access routes and PWMLs friendly toilets especially in government funded entities such as; academic institutions, hospitals and public housing estates (Roulstone & Prideaux, 2009). In their study Otmani, Moussaoui and Pruski, (2009) also observed that the Code of Construction and Dwelling that established Law 2005-102 required that every public buildings is accessible to physically disabled people providing them with the opportunity to freely enter, get around, exit and equally benefit from all services offered to the public in France. They also noted that the accessibility of these establishments or installations for physically challenged persons had to comply with specific obligations relating to negotiable routes, elevator lifts, stairs, car parks and lavatories in terms of non-slippery, non-moving and obstacle free floors, ramps that lead to principal entrances and sliding doors for wheelchair users (Otmani, et al., 2009).

Larkin, Hitch, Watchorn and Ang, (2015) posit that the Disability Discrimination Australian Act. (DDAA) of 1992 and National Disability Strategy were the two major legislations that guide building accessibility by PWMLs in Australia. Further, they argued that these regulations had introduced state building codes that required that all government funded entities; academic institutions, hospitals, public recreation facilities and public housing estates to be accessible by PWMLs (Larkin, et al., 2015). In another study Ward, Franz and Adkins (2013) had found evidence of a positive relationship between adherence to DDDA and accessibility to public housing estates in Australia. They further noted that adherence to the DDDA had resulted to the construction of accessible lavatories completely fitted with grab rails, the installation of staircases that were friendly to crutch users and ramps that made the houses accessible to wheelchair users (Ward, et al., 2013).

In their study, Hussein and Yaacob, (2012) also mentioned that a legislation; The Person with Disabilities Act (Act 685) was adopted in Malaysia in 2008. Further, they observed that the PWD ACT 685 introduced two codes; Code of Practice for Access for disabled persons to public buildings which required that all government funded buildings including; academic institutions, health care facilities, state public housing estates are accessible to physically handicapped persons (PWMLs) and the Code of Practice for Access of Disabled Persons outside Buildings which required that access routes to buildings were not obstructed, the availability of standard ramps for wheelchair users and staircases for crutch users and conducive parking spaces for PWMLs (Hussein & Yaacob, 2012). Lau, Ho and Yau, (2014) also found evidence exhibiting a positive relationship between adherence to the PWD ACT 685 and accessibility by PWMLs to university buildings in Hong Kong. They also noted that most university buildings were being renovated which involved; the construction of ramps, PWMLs friendly lavatories and conducive staircases for crutch users and unobstructed access routes (Lau, et al., 2014).

Scholars have also found evidence on building regulations that provide framework for accessibility of buildings by PWMLs. In their study Asante and Sasu, (2015) observed that the Persons with Disability (PWD) Act 2006 (Act 715) was adopted to provide a regulatory framework to make academic, residential and recreational facilities barrier-free for PWMLs in Ghana. They however found evidence that most established buildings were inaccessible to PWMLs since most had inaccessible principal entrances, lacked wheelchair ramps, their toilets lacked grab rails and their staircases were too steep for crutch users (Asante & Sasu, 2015). Similar findings were reported by Armah and Kwantwi-Barima, (2016) who noted despite the existence of the PWD Act 2006 (Act 715) most public buildings and government funded institutions such as colleges were inaccessible for PWMLs. They also noted that most of these buildings and facilities especially colleges lacked ramps for wheelchair users, small lavatories that lacked grab rails and their principal entrances were heavy doors unfriendly for crutch users (Armah & Kwantwi-Barima, 2016).

Similarly in their study Ahmed, Awad and Adam (2014) observed despite the existence of the Nigeria with Disability Decree of 1993 most buildings in the country including academic institutions were inaccessible for PWMLs. They further noted the buildings lacked ramps, were characterized with slippery floors and steep staircases (Ahmed, et al., 2014). In their study Ramakuela and Maluleke, (2011) mentioned The Disability Policy Guideline of South Africa that provides standards to making public buildings accessible for physically handicapped persons. However, they argued that poor infrastructural designs of university buildings denied physically handicapped students access to some building parts due to lack of ramps and narrow lavatories' doors both of which denied wheelchair users access. They further observed steep staircases denied students with crutches physical access to libraries while narrow aisles denied students on wheelchairs access to lecture halls (Ramakuela & Maluleke, 2011).

In their study Aldersey and Turnbull, (2011) mentioned The United Republic of Tanzania's National Policy on Disability requiring better treatment for PWMLs. However they contend that this law has not improved accessibility to building infrastructure by PWMLs (Aldersey & Turnbull, 2011). Similarly, Majinge and Stilwell (2013) found an insignificant negative relationship between the existence of the United Republic of Tanzania's National Policy on Disability and accessibility of library building infrastructure in a public university by wheelchair users. Further, they contend that the enactment of the law did not witness the construction of more accessible building infrastructure in public universities by PWMLs in the country (Majinge & Stilwell, 2013).

5. Theoretical Framework

This study is pivoted on one theory: Resistance Disability Theory. Gabel and Peter, (2004) proponents of the Resistance Disability Theory contend that the theory is premised on the idea that disabled persons are supposed to create opposition to stigma, disablement, social maltreatment, political and economic exclusion. Further, they postulate that the theory is a practical application to the struggles of disabled people within the world's societies with relate to equal participation opportunities (Gabel & Peter, 2004). Resistance theory also argues that through resistance, disabled persons try to pull the society in seeing things such accessibility to building infrastructure as they see them. However, they note that it is not only the disabled that resist but other groups like politicians resist against the disabled persons and therefore only offer reactive responses to the accessibility needs of physically handicapped persons (Gabel & Peter, 2004).

In adopting this theory this study therefore contends that through its strong civil rights component the theory provides a foundation on the effect of building regulations by moving beyond the reactive responses of legislation such as the PWD 2006 ACT 715 of Ghana but to both proactively, strongly oppose entrenched beliefs and propose designs which integrate accessible features into the overall design scheme positively affecting accessibility to the building infrastructure by physically challenged persons.

6. Research Methodology

The study was guided by Descriptive survey research design to investigate on the relationship between building regulations and accessibility to building infrastructure by physically challenged persons in Meru Town, Meru County. The use of descriptive survey research facilitated the gathering of both qualitative and quantitative data on the effect of building regulations and accessibility to building infrastructure by physically challenged persons in Meru Town. Descriptive design was also instrumental in establishing the link between the variables under study and the study problem. This is because survey design made it possible for the researcher to investigate on study participants' understanding, attitudes and values in relation to the study problem. Survey design is also a useful channel in collecting of data from samples representing large populations. A sample size of 128 made up of; members of the Association of Physically Disabled of Kenya (APDK)-Meru Branch, County Government Planning officers and Consultants (Architects, Contractors and Structural Engineers) were used in the research. Stratified and simple random procedures were employed to select respondents. The researcher with help of research assistants administered questionnaires to the sampled participants. Collected primary data was edited, tested for integrity and coded. Quantitative data was analyzed making use of descriptive statistics through the application of Statistical Package for Social Sciences (SPSS) version 21.0 and study findings presented using frequency and percentage tables to make valid conclusions. Qualitative data were analyzed through the utilization of content analyses through the organizing of collected data into themes, patterns and sub-topics modeled by the objectives of the study.

7. Findings and Interpretations

The study sought to establish the relationship between building regulations and accessibility to building infrastructure by physically handicapped.

7.1. Building Regulations and Accessibility to Public Housing by Physically Challenged Persons

The study sought to establish the extent to which respondents agreed with the following statements relating to Building Regulations and Accessibility to public housing by physically challenged persons in Meru town. The results are presented in Table 1:

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std deviation
There exists building regulations on provision of wheelchair ramps in public housing in Meru Town.	4.6	9.3	7.4	29.6	49.1	4.2710	0.73421
Building regulations on provision of grab rails in toilets in public housing does not exist in Meru Town.	0	3.7	5.6	39.8	50.9	4.5370	3.93029
There exists building regulations on provision of wide aisles in public housing in Meru Town.	0	2.8	6.5	59.3	31.5	4.1481	0.82519
Building regulations on provision of light doors in public housing does not exist in Meru Town.	0	6.5	13.0	44.4	36.1	4.8148	0.49574

Table 1: Building Regulations and Accessibility to Public Housing

From the research findings, majority of the respondents agreed that there exists building regulations on provision of wheelchair ramps in public housing in Meru Town (Mean =4.2710 , std dev =.73421), Building regulations on provision of grab rails in toilets in public housing does not exist in Meru Town (Mean = 4.5370, std dev =3.93029), There exists building regulations on provision of wide aisles in public housing in Meru Town (Mean =4.1481, std dev =.82519) and Building regulations on provision of light doors in public housing does not exist in Meru Town (Mean = 4.8148, std dev =.49574). These findings are important as they mean that a vast majority of respondents 50.9 % recognized the importance of enacting regulations that requires the installation of Grab/Hand rails in lavatories as a measure of enhancing sanitary accommodation in public building infrastructure for physically handicapped persons,

most of respondents 49.1 % have knowledge on the existence of building regulations on the provision of wheelchair ramps in public housing and they can therefore use this knowledge to challenge the non-provision of these physically handicapped persons accessibility features in public housing, while a significant number of respondents 36.1% also have knowledge on the non-existence of regulations requiring the installation of light doors in public housing and can use these knowledge to engage in advocacy either at the devolved or the national level for the provision of these physically handicapped persons accessibility features in public housing, and a minimal number of respondents 31.5% had knowledge on the existence of building regulations on the provisions of wide aisles public housing and they could use this knowledge either to petition the devolved units to provide this accessibility feature or engage in advocacy at the national level or hold demonstrations calling for the provision of this accessibility feature in public housing.

7.2. Building Regulations and Accessibility to Education Facilities by Physically Challenged Persons

Further the study sought to establish the extent to which respondents agreed with the following statements on building regulations and accessibility to education facilities by physically challenged persons. The results are presented in Table 2.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Deviated
There exists building regulations on provision of wheelchair ramps in education facilities in Meru Town.	0	2.7	6.4	59.4	31.6	4.1944	1.07180
Building regulations on provision of spacious lavatory in education facilities does not exist in Meru Town.	0	6.2	13.3	44.1	36.5	3.8333	1.11489
There exists building regulations on provision of curb cuts in education facilities in Meru Town.	0	2.8	6.5	59.3	31.5	3.9252	1.13021
Building regulations on provision of wide aisles in education facilities does not exist in Meru Town.	0	6.5	13.0	44.4	36.1	4.2685	1.11579

Table 2: Building Regulations and Accessibility to Education Facilities

From the research findings, majority of the respondents agreed that there exists building regulations on provision of wheelchair ramps in education facilities in Meru Town (Mean = 4.1944, std dev = 1.07180), Building regulations on provision of spacious lavatory in education facilities does not exist in Meru Town (Mean = 3.8333, std dev = 1.11489), there exists building regulations on provision of curb cuts in education facilities in Meru Town (Mean = 3.9252, std dev = 1.13021) and building regulations on provision of wide aisles in education facilities does not exist in Meru Town (Mean = 4.2685, std dev = 1.11579). These findings essentially mean that a vast majority of respondents 59.4 % were equipped with knowledge on the existence of building regulations requiring that education facilities in Meru town had provided wheelchair ramps to enhance accessibility of physically handicapped persons and they can therefore use this knowledge to challenge the non-provision of these physically handicapped persons accessibility features in these academic institutions, most of respondents 59.3 % have knowledge on the existence of building regulations on the provision of curb cuts in education facilities and they can therefore use this knowledge to challenge the non-provision of these physically handicapped persons accessibility features in these academic institutions, while a significant number of respondents 44.4% also have knowledge on the non-existence of regulations requiring the provision of wide aisles in education facilities and can use these knowledge to engage in advocacy either at the devolved or the national level or petition both levels of government for the provision of these physically handicapped persons accessibility features in these academic institutions, and a minimal number of respondents 44.1% were equipped with knowledge on the non-existence of building regulations on the provisions of spacious lavatory in education facilities and they could use this knowledge either to petition the devolved units to provide this accessibility feature or engage in advocacy at the national level or hold demonstrations calling for the provision of this sanitary accommodation feature in academic institutions. This could also mean very few people place importance on spacious lavatories in academic institutions.

7.3. Building Regulations and Accessibility to Health Care and Recreation Facilities by Physically Challenged Persons

The study sought to establish the extent to which respondents agreed with the following statements relating to building regulation and accessibility to Health Care and Recreation Facilities. The results are presented in Table 3

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Deviated
There exists building regulations on provision of wheelchair ramps in health care facilities in Meru Town.	4.1	14.8	14.8	28.7	37.5	4.8796	0.32691
Building regulations on provision of disabled car parks in recreation facilities does not exist in Meru Town.	4.0	9.6	7.7	29.0	49.7	4.6204	0.89357
There exists building regulations on provision of un-obstructed access routes in recreation facilities in Meru Town.	0	14.8	14.8	28.7	41.6	3.4074	1.43414
Building regulations on provision of elevators in recreation facilities does not exist in Meru Town.	0	0	7.4	38.9	53.7	4.1944	1.10613

Table 3: Building Regulations and Accessibility to Health Care and Recreation Facilities

From the research findings, majority of the respondents agreed that there exists building regulations on provision of wheelchair ramps in health care facilities in Meru Town (Mean =4.8796 , std dev =.32691), building regulations on provision of disabled car parks in recreation facilities does not exist in Meru Town (Mean = 4.6204, std dev =.89357), there exists building regulations on provision of un-obstructed access routes in recreation facilities in Meru Town (Mean = 3.4074, std dev =1.43414) and that building regulations on provision of elevators in recreation facilities does not exist in Meru Town (Mean = 4.1944, std dev =1.10613). From the research findings, majority of the respondents agreed that there exists building regulations on provision of wheelchair ramps in public housing in Meru Town (Mean =4.2710 , std dev =.73421), Building regulations on provision of grab rails in toilets in public housing does not exist in Meru Town (Mean = 4.5370, std dev =3.93029), There exists building regulations on provision of wide aisles in public housing in Meru Town (Mean =4.1481, std dev =.82519) and Building regulations on provision of light doors in public housing does not exist in Meru Town (Mean = 4.8148, std dev =.49574). These findings are important as they mean that a vast majority of respondents 53.7 % were equipped with knowledge on the non-existence of building regulations on the provisions of elevators in recreation facilities and they could use this knowledge either to petition the devolved units to provide this accessibility feature or engage in advocacy at the national level or hold demonstrations calling for the provision of this accessibility features, most of the respondents 49.7 % have knowledge on the non-existence of building regulations on the provision of reserved disabled car parks and they can therefore use this knowledge to challenge the non-provision of these physically handicapped persons accessibility features in recreation facilities, while a significant number of respondents 41.6% also have knowledge on the existence of regulations requiring the provision of un-obstructed access routes in recreation facilities and can use these knowledge to engage in advocacy either at the devolved or the national level for the provision of these physically handicapped persons accessibility features in public housing, and a minimal number of respondents 37.5% had knowledge on the existence of building regulations on the provisions of wheelchair ramps in health care facilities in Meru Town and they could use this knowledge to either petition the devolved units to provide this accessibility feature or engage in advocacy at the national level or hold demonstrations calling for the provision of this accessibility feature in health care facilities in Meru Town.

7.4. Inferential Statistics and Regression Results

Pearson correlation analysis was also conducted to show a linear relationship between the predictor variable and explanatory variable. It thus, helped in determining the strengths of associations in the model, that is, on how the variable (building regulations) under study explained its relationships with accessibility of building infrastructure by physically handicapped persons in Meru Town, Meru County, Kenya. The results are presented in Table 4

Accessibility Of Building Infrastructure	Accessibility Of Building Infrastructure	
	Pearson Correlation	1
	Sig. (2-tailed)	
Building Regulations	Pearson Correlation	0.822
	Sig. (2-tailed)	0.009

Table 4: Correlations Table

Results in Table 4 reveal that there is a strong, positive and significant correlation between building regulations and accessibility of building infrastructure by physically challenged persons in Meru Town. ($r = 0.822$, p value= 0.009). This implies that building regulations had a positive and significant correlation with accessibility to building infrastructure by physically challenged persons in the town.

7.5. Multivariate Regression Analysis Results

This study employed a multiple regression analysis to test the effect of independent variables among them the predictor (building regulations) under study. This as shown in Table 5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.818 ^a	0.669	0.6134	0.32344
Predictor: (constant)	Building Regulations			
Dependent: Variable.	Accessibility to Building Infrastructure			

Table 5: Model Summary
Source: Research data, (2016)

Based on study findings, the predictor variable selected (i.e. building regulations) gave an explanation for 61.3% difference in accessibility of building infrastructure by physically challenged persons. From the test model, 38.7% of the variation in accessibility of building infrastructure by physically challenged persons in Meru Town could not be accounted for by the model.

7.6. Regression Coefficients

The study also used regression coefficients to determine association between the study's independent variable (building regulations) and accessibility of building infrastructure in Meru Town. This is as shown in Table 6.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.422	0.1388		0.32891	0.000
Building Regulations	0.0288	0.0041	0.02655	0.14236	0.015

Table 6: Regression coefficients

From the data in Table 6, the established regression equation for the relationship between building regulations and accessibility of building infrastructure in Meru Town was:

$$Y = 0.422 + (0.0288)$$

Based on the regression equation above it was observed that presuming building regulations are at constant zero, accessibility of building infrastructure by physically challenged persons in the town was 0.422. From the results it was also deduced that a unit increase in building regulations would lead to a 0.0288 resulted growth accessibility of building infrastructure among physically challenged persons in Meru Town. This finding signify that the non-existence coupled with ineffective building regulations negatively affected accessibility of building infrastructure by physically challenged persons. The study also established that this was at a significance value of 0.000 which is < 0.05 which signify building regulations to a great extent affected accessibility of building infrastructure by physically challenged persons in Meru town. The Null hypothesis that building regulations do not have a significant relationship with accessibility of building infrastructure by physically challenged persons in Meru town was rejected while the Alternative hypothesis; building regulations have a significant relationship with accessibility of building infrastructure by physically challenged persons in Meru town accepted.

8. Conclusions

The study concluded that the non-existence of effective and sufficient building accessibility regulations adversely affected the accessibility of building infrastructure by physically challenged persons in Meru Town. The study also concludes that there exists failure on the supervisory role of National Construction Authority (NCA) in enforcement of building regulations.

9. Study Recommendations

Based on the present findings and analysis, the study recommends an enforcement of Article 54 of the 2010 Constitution of Kenya and The Persons with Disability Act of 2003 both of which require that buildings housing education facilities and other buildings providing housing for other facilities are accessible by physically challenged persons. by authorities charged with construction supervisory roles such as the National Construction Authority (NCA).

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