

**Research Article****Barriers to Access Quality Healthcare Services among Physically Challenged Persons in Gem Sub County, Siaya County'****\*Owuocha, Dorice Akoth<sup>1</sup>, Onguru, Daniel Ogungu<sup>1</sup>, Otieno, David Odongo<sup>2</sup>, Ojwang', Hellen Atieno<sup>1</sup>, Atito, Raphael Omolo<sup>1</sup>, and Onyango, Merceline Awino<sup>1</sup>**<sup>1</sup>Jaramogi Oginga Odinga University of Science and Technology, Bondo, Kenya<sup>2</sup>In-depth Research Services Institute of Health and Social Work Nairobi, Kenya.

Despite the increase in the number of health services provided and Kenya's commitment to equal access to quality healthcare for all by the year 2030, the physically challenged persons still find difficulty in accessing health services for reasons attributable to health care related factors. This study targeted the physically challenged persons in Gem Sub-county, Kenya. Stratified and systematic random sampling was used to select 108 people with physical disability. Data was collected using semi-structured questionnaire and analyzed using SPSS, version 23. Descriptive data were summarized in tables and charts while  $\chi^2$  test was used to detect the relationship between relevant variables ( $\alpha= 0.05$ ). This study confirmed that environmental accessibility of the hospitals, their location and infrastructure leading to the hospitals greatly influence ability of people with physical disabilities to access quality healthcare( $p<0.05$ ). All the healthcare facilities were not adequately equipped to handle people with disabilities. The healthcare system-related factors had influence negatively on access of quality care to the physically handicapped persons in Gem sub County.

**Keywords:** Access; barrier; Gem sub-county; healthcare related factors; physical disability**INTRODUCTION**

Over a billion people (15%) have some form of disability (WHO, 2018b). According to WHO (2001) physical disability may either be congenital or as a result of injury, muscular dystrophy, multiple sclerosis, cerebral palsy, amputation, heart disease, pulmonary disease or more. Some persons may have hidden (non-visible) disabilities which include pulmonary disease, respiratory disorders, epilepsy and other limiting; Conditions interaction between individuals with a certain health condition like cerebral palsy, down syndrome and environmental factors (inaccessible transport and public buildings and limited social support). While some PWPDP's health conditions result in extensive healthcare needs and poor health, some do not. In addition, all people with disabilities have same general healthcare needs and hence need access to conventional healthcare services. Despite the universal right to access the same range, standard and affordable healthcare, PWPDPs continue experiencing challenges in accessing these services (Eide, *et al.* 2015)

Health is a basic need and every person has the right to the highest attainable standard of health, which includes the right to healthcare services, including reproductive

healthcare (Gibson & Mykitiuk, 2012). United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) emphasizes that state parties should take all appropriate measures to ensure access for persons with disabilities to health services that are gender sensitive, including health related rehabilitation (Legge & Chung, 2016). Equitable access to healthcare is a major principle of national health system globally (Mannino *et al.*, 2018; Northway, 2011). However, persons with physical disabilities generally experience greater barriers in accessing healthcare than general population and these problems are further exacerbated for those with disabilities in rural areas. PWPDPs in rural settings confront a wide range of informal, geographical and financial barriers to healthcare access. These barriers can lead to negative health disparities between PWPDPs and the general population (Karampampa *et al.*, 2019). Disability is considered not just a problem for people with physical impairment, individuals and their families but also an economic liability for nations (WHO, 2018a, 2018b).

Previous studies have generalized barriers in accessing healthcare among all people with disabilities in rural areas.

From the previous studies, it is noted that the convolution of the barriers which unfold throughout one's lifetime create complex situations and may prevent one from accessing healthcare services even if the services are available. (Thomas SL, 2014). Looking at each barrier independently without appreciating the connection between them may make us think that some of them are rather negligible (Kaye,2019). The interplay between the many different elements creates situations with significant obstacles. The amalgamation of factors creates barriers to accessing healthcare services among PWPDS that may be too challenging to overcome.

This study seeks to determine the combination of factors that influence access of healthcare among people with physical disability in Gem Sub County and describe how uniquely these factors influence PWPDS. This study used a cross sectional study design and incorporates individuals of ages between 18 to 70 years which would be useful when considering an intervention. Our results could inform Kenyan health authorities and members of the community on value of improving ease of access to healthcare services among PWPDS.

## Methods

From the reviewed literature, various methodologies were employed to collect data on access to healthcare services by PWPDS based on the study area, sample size, objectives, in studies by Wanaratwicht C, (North of Thailand, 2008) Leah (Kenya, 2013), Janet (Rwanda, 2018) both probability and non-probability sampling methods were used with specific techniques being stratified, cluster, purposive, systematic and multi-stage random sampling were all used. Descriptive statistics and descriptive research design were adopted where data was collected through questionnaire, key informant interview, observation and focused group discussion were personally administered by the concerned researchers. While Augustina (Ghana, 2019), used photo voice methodology which typically uses a blend of photographs and narratives to enable participants take part in data collection. For descriptive analysis, percentages, mean, and standard deviations were used while for inferential statistical analysis, Chi-square test, and /or one-way ANOVA was used at  $p < 0.05$  for statistical significance.

However, the methodologies reviewed had some few challenges, for instance, during focused group discussions, some participants were not comfortable sharing their information on the barrier to access health care services so they chose to keep some vital information to themselves and felt being discriminated which is associated with stigma within the society limiting the amount and quality of data collected. Closed ended questionnaire were used and administered by the interviewers thus limiting the freedom of respondents to freely give in-depth information but would freely do so if the questionnaires were self-administered and open-ended.

Researcher had to administer the questionnaire personally to each respondent, which consumed much time and energy.

In order to avoid these shortcomings, this study adopted a cross sectional research design with both thematic analysis and chi-square as a statistical test of analysis. Stratified sampling technique has been used while paying attention to semi-structured questionnaire, observation checklist, and photographs as data collection tools to allow for detailed exploration and better understanding of how PWPDS experience barriers to access to healthcare services.

## METHODOLOGY

The sample size for the study was calculated based on Cochran formula (Cochran,1951)

$$n = \frac{Z^2 pq}{e^2}$$

where...

$Z^2$  = z-score for CI=95%

$p$  = proportion of population estimated to have a disability (0.068)

$q$  = 1-p (0.932)

$e$  = accepted margin of error (0.05)

Substituting,

$$n = 1.96^2 * 0.068 * 0.932 / 0.0025 \\ = 97.39 = 98$$

Considering the possibility of non-response, 10% adjustment was factored, bringing the total sample size to 108 PWPDS.

The Stratified sampling procedure was applied, where the study area was stratified into the existing 6 administrative wards. In each ward, the study purposively identified the healthcare facility with the highest patient turnover. The Community units were used to stratify the community in order to sample CHVs from the community. The selected CHVs were requested to identify known PWPDS who were approached and their consent requested'. To address internal validity, the study participants were selected at random and were given space to choose their responses without the influence of a family member or the research assistants. External validity was ensured by conducting a pilot study and the results compared with the real study. The study also ensured only a specific population was studied (people with physical disabilities in Gem Sub County). This makes the outcome of this study able to explain the difficulties people with physical disabilities experience in other rural settings. Data was collected using key informant interview and questionnaires. The questionnaires were developed in English and translated into Luo (native language) with subsequent translation in English at a venue of the participant's choice. The data were checked for errors and were entered into excels spreadsheet. Data collected were coded and tabulated on frequency tables, summarized using percentages and

presented in pie charts, graphs and tables. Data analysis was conducted using Statistical Package for Social Sciences (SPSS v23) and excel. Chi-square analyses were used to detect differences and associations between variables relating to the individual PWPD, The observed data were captured by camera and presented as shown in the appendices while descriptive analysis was conducted to present percentages and thematic analysis was performed to determine certain variables such as age, gender, infrastructure and level of access. The Qualitative component highlighted an array of barriers that prevented the PWPDs from accessing healthcare services. Data was also analyzed at a 95% confidence interval.

**RESULTS**

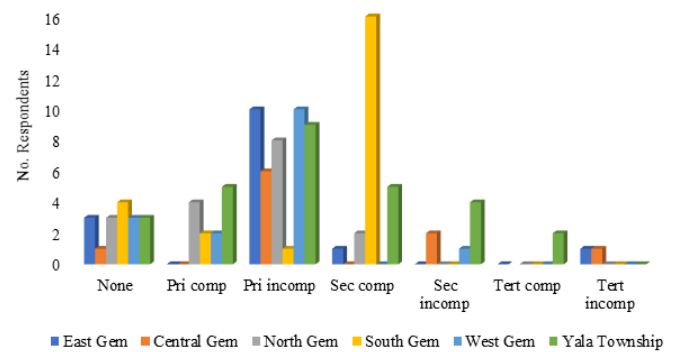
**Social demographic characteristics of the respondents**

The participants' ages were categorized in 6 groups. Majority of the respondents 24(22.2%) were between 35-44 years old while only 18(16.7%) were 65 years old and above. The average age of respondents was 45years with mean 45.3 and standard deviation of 16.1. In terms of sex, equal number of males and females were interviewed for example, 54(50%) of males and 54(50%) of the females were interviewed. The Majority of the respondents 52(48.1%) were married compared to 27(25%) who were widowed, 23(21.3%) who were single and 6(5.6%) divorcees. The study also found that majority 59(54.6%) of the respondents had not completed primary education. Only 8(7.4%) of the individuals had completed secondary education as 16(14.8%) of the individuals had no formal education. This shows that the majority 96.3% of the people with physical disabilities interviewed had not completed tertiary education. The study noted that 70(64.8%) of the individuals were unemployed, 8(7.4%) were formally employed, 28(25.9%) were self-employed and only 2(1.9%) were students. Most respondents (99.1%) were Christians as shown in table 1.

**Table 1:** Social demographic characteristics of respondent

Variable	Category	PWPD	Remarks
<b>Age (years)</b>		n	%
	18 – 24	15	13.9
	25 – 34	15	13.9
	35 – 44	24	22.2
	45 – 54	17	15.7
	55 – 64	19	17.6
>65	18	16.7	
<b>Gender</b>		n	%
	Male	54	50.0
	Female	54	50.0
Intersex		0	0.0
<b>Marital Status</b>		n	n

Single	23	21.3
Married	52	48.1
Divorced	6	5.6
Widowed	27	25.0
<b>Education level</b>	<b>n</b>	<b>%</b>
Primary completed	14	13.0
Primary not completed	59	54.6
Secondary completed	8	7.4
Secondary not completed	7	6.5
Tertiary completed	4	3.7
None	16	14.8
<b>Religion</b>	<b>n</b>	<b>%</b>
Christian	107	99.1
Muslim	1	0.9



**Figure 1:** Distribution of the respondent by education level

Figure 1 shows that the majority of the respondents had not completed primary education 10 (9.3%) from East Gem and West Gem, 9 (8.4%) from Yala Township and 8(7.4%) from North Gem. Only 2(1.9%) respondents from Yala Township had completed tertiary education. South Gem had the highest 16(14.8%) number of the respondents who had completed secondary education.

**Healthcare system related factors**

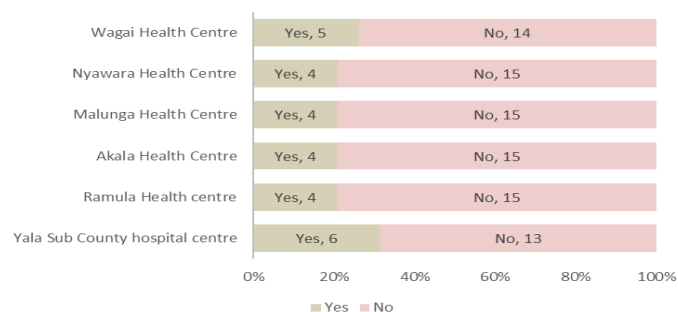
Table 2. shows that the area of residence significantly influenced respondent's awareness of health services and staff's rapport (p<0.05). Different hospitals in the various locations treated the people with physical disability differently. However, staff attitude at reception had no influence on access to healthcare services by PWPDs. The study also found that more than half of the respondents from North Gem 16(94.1%), West Gem 11(68.8%) and East Gem 14 (93.3%) had not accessed the nearest health facility in the previous three months. All the study participants from West Gem 16(100%) and Central Gem 10(100%) were aware of health services. East Gem 8(53.3%) had low awareness rate as compared to other locations. All the participants from East Gem 15(100%) and South Gem 22(100%) took more than one hour to go to the hospital.

**Table 2: Healthcare system related factors**

Variable	PWPDs' opinion				Remarks
	No		Yes		
	n	%	n	%	
<b>Accessed health facility in the past three months</b>					
Yala township	9	32.1	19	67.9	0.0001
South Gem	10	45.5	12	54.5	
North Gem	16	94.1	1	5.9	
West Gem	11	68.7	5	31.3	
East Gem	14	93.3	1	6.7	
Central Gem	4	40	6	60.0	
<b>Aware of health services</b>					
Yala township	2	7.1	26	92.9	0.0001
South Gem	1	4.5	21	95.5	
North Gem	5	29.4	12	70.6	
West Gem	0	0.0	16	100	
East Gem	7	46.7	8	53.3	
Central Gem	0	0.0	10	100	
<b>Staff created good rapport</b>					
Yala township	2	7.1	26	92.9	0.0001
South Gem	13	59.1	9	40.9	
North Gem	5	29.4	12	70.6	
West Gem	11	68.7	5	31.3	
East Gem	1	6.7	14	93.3	
Central Gem	6	60.0	4	40.0	
<b>Distance to hospital in 30 minutes to 1 hour</b>					
Yala township	1	3.6	27	96.4	0.0001
South Gem	0	0.0	22	100	
North Gem	1	5.9	16	94.1	
West Gem	15	93.7	1	6.3	
East Gem	0	0.0	15	100	
Central Gem	3	30.0	7	70.0	
<b>Staff attitude at reception</b>					
Yala township	5	17.9	23	82.1	0.478
South Gem	1	4.5	21	95.5	
North Gem	3	17.7	14	82.3	
West Gem	3	18.8	13	81.3	
East Gem	4	26.7	11	73.3	
Central Gem	3	30.0	7	70.0	

### Health facility check list

All reports on the observations made were done in the six health facilities looking into; Exterior car parking with presence of preserved parking for PWPDs only, signage for the parking and assistance and security around the parking area, entrance and exit with signage and slippery floor, including floor notifications and adequate space, Wheelchair ramps, wide aisle, adjustable equipment and spacious lavatories for PWPDs only. Yala Sub County Hospital recorded the highest 32%, Wagai Health Centre 20% while Nyawara, Malanga, Ramula and Akala all recorded the lowest (14%) in terms of availability of PWPd-friendly infrastructure, as shown in Figure 2.

**Figure 2: Health facility checklist score**

### DISCUSSION

Our study confirmed in line with study done by Kaye in 2019 that low education, physical state of the hospitals, their location, infrastructure leading to the hospitals and staff rapport and attitude greatly influence the ability of people with physical disabilities to access quality healthcare ( $p < 0.05$ ). PWPDs need assistive devices, management of their underlying impairments like communicable and non-communicable diseases which need management with medication and counselling at the healthcare facility level. They have a high risk of adverse health outcomes, their access to health services is hindered due to varied reasons. A good number, 14.8% of the PWPDs did not have a formal education. Awareness of health services needs to be prioritized. This includes the entire healthcare from policies to service delivery. Our results found that more than half of the respondents from North Gem 16(94.1%), West Gem 11(68.8%) and East Gem 14 (93.3%) had not accessed the nearest health facility in the previous three months. Affirmative action needs to be taken to ensure that PWPDs who are disadvantaged, discriminated by society, receive due health services, improve quality of life and contribute to community development. A similar study done in South Africa, Sudan, Malawi, and Namibia (2010 to 2014) to establish the impact of disability on barriers for accessing healthcare in general showed that lack of transport, long distance and poor roads leading to the hospitals, unavailability of service and equipment were some of the major barriers.

Our study found that area of residence significantly influenced the rapport created by the healthcare providers. For example, in West Gem, about 69% of the participants said that the staff did not create a good rapport when they went for healthcare services whereas in Yala township, about 90% of the participants stated that the healthcare providers created a good rapport when they were accessing healthcare services. Equity healthcare is distinguished horizontally and vertically where horizontally means the equal treatment of equals and vertical equity means unequal but appropriate treatment of unequal based on their circumstances. Similar to another study, the inadequate healthcare providers or uneven distribution of

health staff with adequate knowledge in addressing physical disability problems based on geographical locations were the other perceived reasons for poor utilization of health services (Math *et al.*, 2016). Healthcare providers have not been trained to interact with PWPDS and feel uncomfortable or ineffective in communicating with them. This finding shows the importance of strengthening the capacities of healthcare providers to respond to the needs of PWPDS.

This study revealed from the health facility checklist score that all the major hospitals are not adequately equipped to handle people with disabilities with the highest scoring 32% and the lowest scoring 14% and this is considered as a barrier for PWPDS. The most finding is that all the healthcare facilities had no height adjustable examination couches and tables and weighing scales. Our finding shows the absence to be significantly high. Where there is no height adjustable equipment, it indicates that patients may miss physical examination and even screening of diseases like breast cancer, cervical cancer or patients may be examined sited or lifted on the examination couch. Diagnosis may be missed if a patient is not well positioned during a physical examination. Assisting or lifting PWPDS who are sick may make them feel uncomfortable, embarrassed or cause injury to the healthcare provider lifting the patient. Some PWPDS may fear going for healthcare services when they think of past painful experiences, especially to those with labour pains, balance difficulty, obesity and other mobility impairments. This study observed that PWPDS are never weighed because there were no accessible weight scales. These findings confirm the observation made that they are never weighed. For all other patients, weight is the first thing they measure at the out-patient department as it helps to calculate the body-mass index while weight change is used as an indicator for many health problems. Similarly, other studies found that many women with mobility impairments are unable to access breast and cervical cancer screening because examination tables are not height adjustable and mammography equipment only accommodates women who are able to stand (Thewes *et al.*, 2012). This makes most of the PWPDS unable to go to the available health centres and in turn rely on traditional medicine when they become sick. This is consistent with a study done in middle and low income countries (Rasmussen *et al.*, 2018; WHO, 2018a; Wongkongdech & Laohasiriwong, 2014) which found that 6.4% of people with disabilities in low income countries do not get care when needed as compared to 3.9% in the developed countries. This is also supported by Eide *et al.* (2015) which stated that geographic access is an important part of assessing healthcare in low-income and middle-income countries. Terrain, travel distances, population density, and transportation are all important factors in the capacity of a rural community to provide services.

Our study found that the parking arrangements and the exterior of most health facilities are accessible to clients

but significantly, barriers continue to exist for the PWPDS as there is no designated parking area, signage, security and assistance. PWPDS were assisted by their relatives. Similarly, a survey carried out Essen, Germany found that 80 % of orthopedic surgeries and 90% of neurological surgeries did not meet standards, which limited wheelchair users from accessing their doctor of choice. Walk paths in the surrounding environment had barriers like smooth staircases, open gutters and obstructed ramps as shown in appendix A, which is consistent with a study done by Badu *et al.* (2016). Barriers continue to exist in the health facility, for example, non-adjustable chairs at the out-patient department and the physician's office with smooth floors. The most disturbing barriers were found to be washrooms, heavy doors, absence of grab and rails and inadequate space to enter, especially those with wheelchairs, turn and open or close toilet doors. All these barriers mean clients cannot get specimen for laboratory tests, for example stool or urine, causing barriers to appropriate care and diagnostic test. According to the UNCRPD, state parties are obligated to ensure that health facilities are accessible to all and we expected that rural settings will show accessibility but that is not the case. This finding is similar to a study done in Canada where it was seen that the state has not fully fulfilled the provision of UNCRPD on ensuring that all health facilities are accessible to PWPDS (Gibson & Mykitiuk, 2012).

Measures should be put in place to ensure the rights of PWPDS to healthcare services are put in place and implemented under legislative and policy frameworks. Kenya has specific obligations under international law, Constitution of Kenya 2010 and PWDs Act, 2003 to respect, protect and ensure the rights to health for PWPDS. States incorporation with PWPDS and their representative organisations should conduct a review or scoping of all relevant legislative and policy that touches on the rights of PWPDS to healthcare. Through this process, the county government can identify areas of need of reform or development which can provide a foundation for establishing a comprehensive legislation and policy framework. It is essential that an implementation plan be established sooner and that monitoring and evaluation team are included in evaluating legislative and policy framework. The following areas should be considered among others; the role of doctors, nurses and administrators and their continuous training towards PWPDS, physical accessibility by designing accessible health care and accessible environment, information barriers by advising on communication access, economic barriers by provision of support to families of PWPDS and identification of strategies for inclusion

## CONCLUSION

Physical access is important as it may affect the quality of care and willingness to PWPDS to engage in preventive, curative and rehabilitative care. Measures to ensure the

rights of PWPDs to healthcare services are put in place and implemented under legislation and policy. Unfriendly infrastructure, non-height adjustable and environment surrounding of the hospitals is a healthcare related factor that influences access of healthcare among people with physical disabilities. Kenya has specific obligations under legislative and person with disability Act 2003 to respect, protect and ensure the rights to health for PWPDs. Further research is required to explore ways to remove barriers to access to healthcare.

The Ministry of Health and the County Government of Siaya to recruit adequate specialized staff and ensure that the existing and proposed physical infrastructure is universally accessible and friendly to PWPDs and make health promotion information available and factor it to suit the specific needs of PWPDs. In addition, assistive devices should be made available at all government health facilities, at affordable prices.

A more elaborate investigation should be conducted encompassing people living with all forms of disability in Gem Subcounty. In particular, the study should lay emphasis on the challenges they face in the diverse scope of disabilities, the available support, and the need gaps. If possible, such a study should involve a spectrum of interventions to accurately identify the barriers to the uptake of available services.

## ACKNOWLEDGEMENT

I must be grateful to my supervisors Dr. Daniel Onguru and Dr David Otieno for their encouragement, supervision and guidance from the formulation of my research topic to the conclusion of this research thesis and manuscript. I would not have gone far without their support and constructive criticism. I also would wish to acknowledge the efforts of all the lecturers who have taught me the course. I would also love to thank the university of Jaramogi Oginga Odinga University of Science & Technology for granting me the opportunity to take a course in Masters of public health degree in Health Promotion. I must sincerely recognize support from the staff and my peers at the university extra-mural studies for the support and direction in any respect towards the completion of this manuscript

## ETHICAL DECLARATION

**Conflict of Interest:** The authors have no any conflict of interest

**Funding:** the authors received no funding for the study. All expenses were incurred by the corresponding author Mrs. Dorice Akoth Owuocha

**Ethical Approval:** Was sought was Jaramogi Oginga Odinga Teaching and Referral Hospital ERC and National Commission for Science, Technology and Innovation (NACOSTI)

**Informed Consent:** Written permission was sought all the respondents before commencing the study.

## REFERENCES

- Badu, E., Opoku, M. P., & Appiah, S. C. Y. (2016). Attitudes of health service providers: The perspective of people with disabilities in the Kumasi Metropolis of Ghana. *Afr J Disabil*, 5(1), 181. doi: 10.4102/ajod.v5i1.181
- Cochran, W. G. (1951). Modern methods in the sampling of human populations. *Am J Public Health Nations Health*, 41(6), 647-668. doi: 10.2105/ajph.41.6.647
- Chronbach LC. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16,31
- Eide, A. H., Mannan, H., Khogali, M., van Rooy, G., Swartz, L., Munthali, A., . . . Dyrstad, K. (2015a). Perceived Barriers for Accessing Health Services among Individuals with Disability in Four African Countries. *PLoS One*, 10(5), e0125915. doi: 10.1371/journal.pone.0125915
- Gibson, B. E., & Mykitiuk, R. (2012). Health care access and support for disabled women in Canada: falling short of the UN Convention on the Rights of Persons with Disabilities: a qualitative study. *Womens Health Issues*, 22(1), e111-118. doi: 10.1016/j.whi.2011.07.011
- Karampampa, K., Gyllensten, H., Yang, F., Murley, C., Friberg, E., Hillert, J., & Alexanderson, K. (2019). Healthcare, Sickness Absence, and Disability Pension Cost Trajectories in the First 5 Years After Diagnosis with Multiple Sclerosis: A Prospective Register-Based Cohort Study in Sweden. *Pharmacoecon Open*. doi: 10.1007/s41669-019-0150-3
- Kaye, H. S. (2019). Disability-Related Disparities in Access to Health Care Before (2008-2010) and After (2015-2017) the Affordable Care Act. *Am J Public Health*, 109(7), 1015-1021. doi: 10.2105/AJPH.2019.305056
- KNBS. (2012). Kenya 2009 Population and Housing Census: Vol XIII - Analytical Report on Disability Nairobi: KNBS.
- Legge, G. E., & Chung, S. T. L. (2016). Low Vision and Plasticity: Implications for Rehabilitation. *Annu Rev Vis Sci*, 2, 321-343. doi: 10.1146/annurev-vision-111815-114344
- Maart, S., & Jelsma, J. (2014). Disability and access to health care - a community based descriptive study. *Disabil Rehabil*, 36(18), 1489-1493. doi: 10.3109/09638288.2013.807883
- Mannino, J. E., Disabato, J. A., & Betz, C. L. (2018). The Development and Content Validation of a Self-reported Instrument to Explore the Nurse's Role in Healthcare Transition Planning for Youth and Young Adults With Chronic Illness and/or Disability (NR-HCTP). *J Pediatr Nurs*, 43, 56-61. doi: 10.1016/j.pedn.2018.08.015
- living with disabilities. *Rural Remote Health*, 15 3332.

- Math, S. B., Gupta, A., Yadav, R., & Shukla, D. (2016). The rights of persons with disability bill, 2014: Implications for neurological disability. *Ann Indian Acad Neurol*, 19(Suppl 1), S28-S33. doi: 10.4103/0972-2327.192884
- McClintock, H. F., Kurichi, J. E., Barg, F. K., Krueger, A., Colletti, P. M., Wearing, K. A., & Bogner, H. R. (2018). Health care access and quality for persons with disability: Patient and provider recommendations. *Disabil Health J*, 11(3), 382-389. doi: 10.1016/j.dhjo.2017.12.010
- Moscoso-Porras, M. G., & Alvarado, G. F. (2018). Association between perceived discrimination and healthcare-seeking behavior in people with a disability. *Disabil Health J*, 11(1), 93-98. doi: 10.1016/j.dhjo.2017.04.002
- Northway, W. (2011). Palatal expansion in adults: the surgical approach. *Am J Orthod Dentofacial Orthop*, 140(4), 463, 465, 467 passim. doi: 10.1016/j.ajodo.2011.07.003511-522. doi: 10.1016/j.pmr.2019.04.001
- Rasmussen, L. R., Mainz, J., Jorgensen, M., Videbech, P., & Johnsen, S. P. (2018). Inpatient Volume and Quality of Mental Health Care Among Patients With Unipolar Depression. *Psychiatr Serv*, 69(7), 797-803. doi: 10.1176/appi.ps.201700426
- Thewes, B., Butow, P., Bell, M. L., Beith, J., Stuart-Harris, R., Grossi, M., . . . Committee, F. C. R. S. A. (2012). Fear of cancer recurrence in young women with a history of early-stage breast cancer: a cross-sectional study of prevalence and association with health behaviours. *Support Care Cancer*, 20(11), 2651-2659. doi: 10.1007/s00520-011-1371-x
- Thomas, S. L., Wakerman, J., & Humphreys, J. S. (2014). Ensuring equity of access to primary health care in rural and remote Australia - what core services should be locally available? *Int J Equity Health*, 14, 111. doi: 10.1186/s12939-015-0228-1
- WHO (2001). International Classification of Functioning Disability and Health (ICF) Karp, Gary "Early history of disability" available at [www.lifeonwheels.net/writings/history.html](http://www.lifeonwheels.net/writings/history.html).[www.un.org/disabilities](http://www.un.org/disabilities)
- WHO. (2018a). Disability and health. Retrieved January, 2020, from <https://www.who.int/news-room/fact-sheets/detail/disability-and-health>
- WHO. (2018b). WHO Global disability action plan 2014-2021. Retrieved January, 2020, from [https://www.who.int/disabilities/about/action\\_plan/en/](https://www.who.int/disabilities/about/action_plan/en/)
- Wongkongdech, A., & Laohasiriwong, W. (2014). Movement disability: situations and factors influencing access to health services in the northeast of Thailand. *Kathmandu Univ Med J (KUMJ)*, 12(47), 168-174. doi: 10.3126/kumj.v12i3.13709

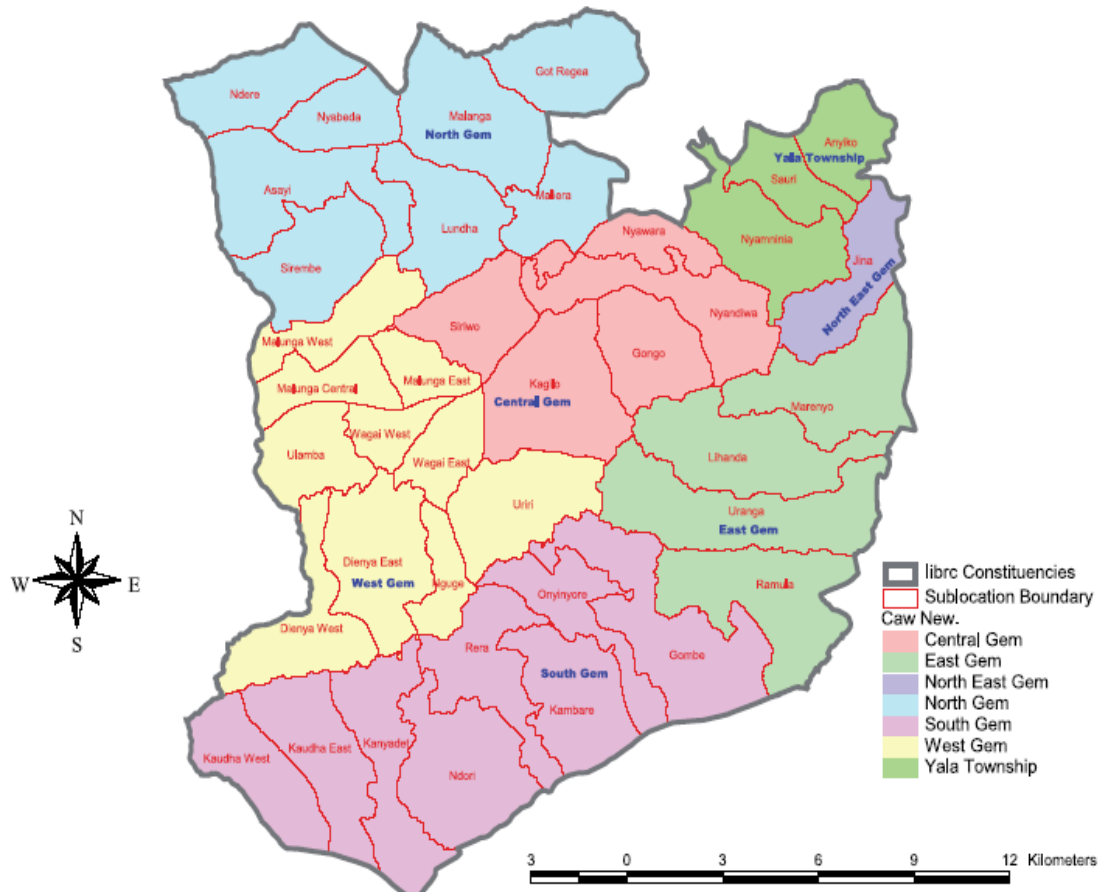
### Appendix 1. Healthcare facility physical infrastructure and its surrounding environment



- a. Inaccessible smooth stair case
- b. Obstructed ramps
- c. Obstructed office entry
- d. Open gutter in 1 floor
- e. Un-adjustable chair/examination couch
- f. Obstructed environment
- g. Researcher in the physiotherapy room with smooth floor with no signage
- h. Obstructed entrance with heavy door
- i. No privacy to PWPd on wheelchair
- j. Health facility pit latrine



**Appendix II: Gem sub- county Map**



**\*Corresponding Author:** Dorice Akoth Owuocha, (Postgraduate student), Jaramogi Oginga Odinga University of Science and Technology, Bondo, Kenya. **Email:** doriceowuocha@gmail.com

**CO-AUTHOR’S INFORMATION**

Dr Daniel Onguru; **Email:** donguru@jooust.ac.ke  
 Dr David Otieno; **Email:** dvdotieno@gmail.com  
 Ms. Hellen Atieno Ojwang’; **Email:** ojuanghellen@yahoo.com  
 Atito, Raphael Omolo; **Email:** atitoraphael@gmail.com  
 Onyango, Merceline Awino; **Email:** awinomerceline49@gmail.com

**Accepted 14 September 2020**

**Citation:** Owuocha DA, Onguru DO, Otieno DO, Ojwang’ HA, Atito RO and Onyango MA (2020). Barriers to Access Quality Healthcare Services among Physically Challenged Persons in Gem Sub County, Siaya County’. International Journal of Public Health and Epidemiology Research, 6(2): 172-180.



**Copyright:** © 2020 Owuocha *et al.* This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are cited.