Utilization of Evidence-Based Outcome Measures in the Rehabilitation of Hemiparetic Cerebral Palsy among Physiotherapists at the Kenyatta National Hospital, Kenya

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Abstract: Evidence-based practice has been argued to be the most essential approach to treatments in a variety of medical professionals. Yet, there is no research that has been done to determine whether evidence is used in outcome measures in Kenya, particularly in rehabilitating hemiparetic cerebral palsy. Cerebral palsy is the leading cause of motor disability in children, hemiparetic cerebral palsy accounts for 60% of cerebral palsy cases diagnosed. World Health Organization estimates that in Kenya 1 in every 300 children has Cerebral palsy, indicating that over 60,000 children have cerebral palsy. Hence, the objective of the study was to determine the utilization of evidence-based outcome measures in the rehabilitation of hemiparetic cerebral palsy among physiotherapists at the Kenyatta National Hospital. The study design was a descriptive cross-sectional study using questionnaires. The data was analyzed using STATA software. The study found that utilization of evidence in outcome measures among physiotherapists was at 43% and the factors examined in this study explained 96% of the utilization of evidence in outcome measures. This study recommends that more measures needs to be implemented to ensure training on EBP and adoption of it in physiotherapy clinical practice in Kenya.

1. Introduction

Outcome measurement tools are fundamental in the rehabilitation process of cerebral palsy. Outcome measures are tools used to determine the change in ability before and after implementation of an intervention. It is also used to assess actual or perceived ability for an individual to complete personal care, participate in activities of daily living and carry out activities in their environment [11]

These outcome measure tools have to be based on evidence for effective patient care. Thus, evidence-based practice (EBP) has been argued to be an essential component of service delivery in healthcare. Evidence-based practice has its roots in evidence-based medicine, a term that was used to shift clinical decision making from institutional to scientific, clinically relevant research. EBP is defined as "integrating individual clinical expertise with the best available external clinical evidence from systematic research". In 1996, this definition was further expanded to also include incorporation and patients' values and preferences. Evidence-based physiotherapy practice can therefore be defined as physiotherapy informed by relevant high quality clinical research. [3,6,8,23]

The benefits of EBP in outcome measures are numerous. Some of the most notable being higher quality of care that improves the patient outcomes, increasing health practitioners' adaptability, skills, critical thinking and decision-making. EBP ensures improved identification of patients who are at risk of poor or adverse outcomes thus only the most effective interventions for a particular condition can be adopted. It also ensures the most cost effective setting for patients to receive rehabilitation services and makes certain that health providers are constantly evaluating various researches that would support and be beneficial in their practice. [11,16]

EBP involves a number of components that follows a step by step process starting with formulation of answerable clinical questions which aid in coming up with answers to either diagnosis, therapy, prognosis or treatment of a condition. Available evidence is then sought through selection of the resources to be utilized by keying in the relevant medical subject headings. Afterwards, evidence from the search engines are appraised by filtering out studies that may be weak. This is done so as to answer questions on the study objectives, validity and how the results of the study apply to actual medical practice. Implementation of the evidence, incorporating clinical expertise and patient values and evaluation of the outcomes are the last steps to evidence-based practice. Evaluation of the evidence is done to look into the effectiveness and efficacy of the practice to the patient. [5,18]

Cerebral palsy (CP) is the most common motor disability in children, the most common type being

the hemiparetic cerebral palsy (HCP) that occurs in 60% of diagnosed CP cases. It is a group of neurological disorders that appear at infancy or early childhood that permanently affects body movement, muscle coordination and balance. Hemiparetic cerebral palsy is not a progressive condition thus persons can lead a productive and normal life. Unfortunately, there is no cure for HCP. Centre for Disease Control and Prevention has estimated that the lifetime cost to care for an individual with CP is close to United States dollars 1 million. [22,24]

Global incidence of cerebral palsy stands at 2 to 3 per every 1,000 births. There is no available statistics on cerebral palsy in Africa. However, it is approximated that up to 10 babies per 1,000 births are born with CP in Africa and the numbers are rising. In Kenya, there is an increase in the occurrence of CP in newborns and infants due to brain damage. World Health Organization (WHO) estimates that 1 in every 300 children has CP, suggesting that over 60,000 children in Kenya have cerebral palsy. [1,2,20]

Management of the condition is done through physiotherapy such as rehabilitation regimen, splinting, bracing, sensory integration and in severe cases orthopedic surgery may be required. Prognosis can thus be improved by ensuring physiotherapy and relevant treatments are started as soon as possible and being mindful of any complications that may arise. [1,22,24]

Thus, physiotherapy is fundamental to the lives of persons living with cerebral palsy. Measurement of outcomes based on evidence is needed to determine whether rehabilitation methods done are useful to the patients. Yet, there was no research that has been done to determine whether evidence is used in outcome measures as part of the rehabilitation process in Kenya, particularly in hemiparetic cerebral palsy. [14]

1.1. Statement of the problem

Cerebral palsy is the leading cause of motor disability in children and regular therapy is required. This continuous therapy could lead to financial strain on the family. Yet, physiotherapist often rely on intuition when it comes to evaluation of rehabilitation process rather than established outcomes measures. Kenyan physiotherapists also have to depend on treatment outcomes measures developed for other countries as there are no locally developed ones designed to specifically cater for the needs of Kenyan citizens living with HCP.

In addition, patients are not involved in the process of choosing the best rehabilitation plan for them; their opinions, values and thoughts not considered at all. This has led to inaccurate evaluation of the rehabilitation methods used, leading to unnecessarily long treatment periods and in some cases prolonged pain and suffering.

There is no literature to show whether evidence-based outcome measures are utilized in hemiparetic cerebral palsy. Thus, the study sought to fill this gap by establishing whether outcome measures based on evidence are utilized by physiotherapists in the rehabilitation of hemiparetic cerebral palsy in Kenya, particularly, at the Kenyatta National hospital.

1.2. Objectives

The objectives of this study was:

To determine the knowledge and clinical practices of physiotherapists in the use of evidence-based outcome measures in the rehabilitation of hemiparetic cerebral palsy.

To establish the sources of clinical guidelines available to inform outcome measures in the rehabilitation of hemiparetic cerebral palsy by physiotherapists.

To determine the factors associated with the use of evidence-based outcome measures by physiotherapists in the rehabilitation of hemiparetic cerebral palsy.

2. Methodology

2.1. Study site

The study was conducted at the Kenyatta National Hospital, the largest referral and teaching hospital in Kenya under the Ministry of Health. The hospital is located in Kenya's capital, Nairobi City in Upper Hill area. It has a daily public traffic of over 30,000 that is served by about 6,000 staff. It also has fifty wards with a bed capacity of 1,800 beds and twenty-two outpatient clinics, one of which is the physiotherapy department. The physiotherapy department caters for both in-patient and out-patient in the hospital.[14]

2.2. Study design

The study was a descriptive cross-sectional study using semi-structured questionnaire design that included both closed-ended and a few open-ended questions. Sample size determination was calculated from the study population which was sixty-two

physiotherapists working at Kenyatta National Hospital. The formula used to determine the sample size was the Yamane (1967) Sample Size Determination Formula for small populations. This ensured a higher confidence interval and guaranteed that any heterogeneity in the study population was captured. The formula utilized 95% confidence interval (z=1.96) and confidence level of 0.05 [10]

$$n = \frac{N}{1 + N(e)^2}$$

Where:
n – Required sample size
N – Population size
e – level of precision

Thus:
N = 62
e = 5% =0.05

$$n = \frac{62}{1 + 62(0.05^2)}$$
= 53.68

Sample size = 54

2.3. Data collection tools

The study utilized a questionnaire that was adopted from the questionnaire by Jette et al (2003). It was modified to suit the research objectives of this study. It was a semi-structured questionnaire that included both closed-ended questions and a few open-ended questions. It addressed issues on the knowledge and clinical practices of physiotherapy in the use of evidence in outcome measures, the sources of guidelines to outcome measures available to them and the factors associated with the use of evidence in outcome measures in the rehabilitation of hemiparetic cerebral palsy by physiotherapists in Kenyatta National Hospital. The questionnaire comprised of three parts. The first part sought information on their socio-demographic status; giving information about their age, gender, level of education and clinical practice. The second part examined the participants' knowledge of the outcome measure tools, use of various tools of outcome measures in their clinical practice and the frequency of use. The third section examined the factors associated with the use of evidence in outcome measures in rehabilitation of hemiparetic cerebral palsy including the factors facilitating and inhibiting their use. The researcher administered the questionnaire after the study participants had signed the consent form. [12]

2.4. Data collection procedure, management and analysis.

After acquiring the necessary approval to conduct the study, the researcher identified the potential study participants who had passed the inclusion criteria. The researcher verbally explained to the potential study participant about the study. The consent form gave a summary of what the study entailed, its objectives and the potential risks and benefits the study would have to the study participant. The form included what was expected from the participant to ensure data collected was accurate and reliable. It also included details of the researcher and the supervisors overseeing the research with details of their telephone numbers, email addresses and designations. After explanation of what the study was about with the guidance of the information sheet, the consent form was signed by the study participant, indicating that the study participant understood what the study was about and was willing to take part freely and without coercion, having being signed by both the study participant and the researcher. The questionnaire was then administered to the study participant and collected after it was filled.

The data produced from the questionnaire was quantitative data that was entered, stored and managed on the STATA software. A codebook was developed, guiding the coder codes used in data entry. The codebook gave information on the type of variables, variable name, the operational definition of the variable name, coding options and the number of columns the variables required. The data was stored in form of alphanumeric and numeric form. Data cleaning was then done to identify and correct errors that had occurred during data collection, minimizing their impact on study results. Afterwards, the data on the STATA worksheet was used for analysis and then stored under the STATA database. Backups were made to an external hard drive, eliminating risk of data loss. The files were password protected giving access only to the researcher.[12]

The data was analyzed using STATA software. The Chi-square test was then performed to test association between the discrete categorical variables. Regression analysis was performed to determine the magnitude of linear relationship between the dependent variable (use of outcome measures) and the independent variables such as clinical experience and the level of experience. Finally, summary statistics was conducted and the information presented on charts and summary tables. [15]

3. Findings

A total of 54 physiotherapists were sampled for the study, out of which 49 questionnaires were properly filled and returned. The 5 questionnaires left out were from respondents who returned them half-filled and also from those who did not return them despite follow up.

3.1. Socio-Demographic characteristics

In this study, 53.1% were male and 46.9% were female. About 28.6% of the physiotherapy respondents were between the age bracket of 30-34. Majority (73.5%) had a tertiary education as their highest level of education, (65.3%) diploma as their highest level of education and (73.5%) physiotherapy training from Kenya Medical Training College. Most of the respondents (32.6%) had practiced physiotherapy for a period between 0 to 5 years. The chi square test was used to test association between the dependent and independent variables. A variable was deemed dependent if the probability value (p value) was less than the significance level. The confidence interval of the study was at 95% with a significance level of 0.05. As shown on the table 4.2 below, the level of significance was compared to the probability value. The physiotherapy qualification and training institution were the only socio-demographic characteristics found statistically significant.

Table 2: Socio-demographic characteristics of the physiotherapists

Demographic Characteristics		Frequency	Percent (%)	Chi square (χ^2)	P value
Gender	Male	26	53.1		
	Female	23	46.9		
	Total	**49**	**100.0**	3.4961	0.062
Age	Below 30 years	9	18.4		
	30-34 years	14	28.6		
	35-39 years	7	14.3		
	40-44 years	11	22.4		
	45-49 years	2	4.1		
	Above 50 years	6	12.2		
	Total	**49**	**100.0**	5.1491	0.398
Level of Education	Tertiary	36	73.5		
	University	13	26.5		
	Total	**49**	**100.0**	2.9039	0.088
Physiotherapy Qualification	Diploma	32	65.3		
	Higher Diploma	4	8.2		
	Bachelor's Degree	13	26.5		
	Total	**49**	**100.0**	9.0314	0.011
Training Institution	JKUAT	11	22.4		
	KMTC	36	73.5		
	Abroad	2	4.1		
	Total	**49**	**100.0**	7.4372	0.024

3.2. Knowledge and clinical practice of physiotherapists

Utilization of evidence in outcome measures during rehabilitation of patients with hemiparetic cerebral palsy was at 43%. Majority of the physiotherapists (40.8%) had held their physiotherapy license for less than 5 years and (42.9%) treated 2 to 3 cerebral palsy patients. Of the physiotherapists, 49% stated they did carry out research. Those who did engage in research activities very few (16.7%) researched on outcome measures. The chi square test revealed that the number of cerebral patients a physiotherapist rehabilitated and engaging in research particularly in outcome measures had a statistically significant effect on utilization of evidence in outcome measures.

Table 3: Practices of physiotherapist in the use of evidence in outcome measures

Variables	Frequency		Percent (%)	Chi square (χ^2)	P value
	0-5 years	16	32.6		
	6-10 years	12	24.5		
	16-20 years	12	24.5		
Length of Physiotherapy Practice	Above 20 years	9	18.4		
	Total	**49**	**100.0**	2.6474	0.449
	5-10 years	8	16.3		
Physiotherapy License	11-15 years	2	4.1		
	Above 15 years	19	38.8		
	Total	**49**	**100**	7.1563	0.067
	1	14	28.6		
	2-3	21	42.9		
Number of HCP Patients Treated	4-6	6	12.2		
	More than 10	8	16.3		
	Total	**49**	**100**	32.3264	0.000
	Yes	24	49		
Engaging in Research	No	25	51		
	Total	**49**	**100**	45.1522	0.000
i. Diagnosis	Yes	5	20.8		
	No	19	79.2		
	Total	**24**	**100**	11.4844	0.001
ii. Treatment and Management	Yes	19	79.2		
	No	5	20.8		
	Total	**24**	**100**	32.3264	0.000
iii. Outcome Measures	Yes	4	16.7		
	No	20	83.3		
	Total	**24**	**100**	4.5370	0.033
iv. Assessment	Yes	10	41.7		
	No	14	58.3		
	Total	**24**	**100**	13.0876	0.000

Majority of the physiotherapists (40.8%) indicated that they participated in Continuous Professional Development every year. The table gives a summary on the steps physiotherapy take to acquire evidence for use in outcome measures. Few, (8.2%) receive communication from professional body monthly and this was statistically significant.

Most (57.1%) attended professional meeting on a yearly basis, (79.6%) attended refresher short course in the last 5 years and those who were in advanced courses most (33.3%) were enrolled for a Master's degree. As seen on the table below, level of course enrolled was found statistically significant to the use of evidence in outcome measures.

Table 4: Acquiring Knowledge on evidence-based practice

Variables	Frequency		Percent (%)	Chi square (χ^2)	P value
	Every Month	3	6.1		
Participation in Continuous Professional Development	Every 3 Months	2	4.1		
	Every 6 Months	17	34.7		
	Every Year	20	40.8		
	Never	7	14.3		
	Total	**49**	**100**	6.2164	0.184

Attendance of professional meetings	Monthly	10	20.41		
	Quarterly	8	16.33		
	Yearly	28	57.14		
	Never	3	6.12		
	Total	**49**	**100**	9.1548	0.027
Communication from Professional bodies	Monthly	4	8.2		
	Quarterly	7	14.3		
	Yearly	30	61.2		
	Never	8	16.3		
	Total	**49**	**100**	7.4017	0.060
Attendance of refresher/ Short Course	Yes	39	79.6		
	No	10	20.4		
	Total	**49**	**100**	2.2215	0.136
How long ago	Less than 1 year	22	56.4		
	1 to 2 years	17	43.6		
	Total	**39**	**100**	0.0714	0.789
Enrollment in an advanced Course	Yes	18	36.7		
	No	31	63.3		
	Total	**49**	**100**	9.4423	0.002
Level of course	Certificate	2	11.1		
	Diploma	4	22.2		
	Higher Diploma	2	11.1		
	Bachelor's Degree	4	22.2		
	Master's Degree	6	33.3		
	Total	**18**	**100**	18.0000	0.001

The study examined the knowledge, access and use of the existence of Physiotherapy Management Guidelines for Patients with Cerebral Palsy. Only 37% of physiotherapists utilized these guidelines. The chi square test revealed that knowledge of the existence and use of these guidelines had a statistically significant effect to the utilization of evidence in outcome measures (χ^2 = 10.9920; P = 0.001; χ^2 = 15.0335; P = 0.0000). Statistical significant was observed when it came to knowledge on how to carry out evidence-based practice and in using research tools such as journals,
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books and the internet. Also significant was knowledge on how to access information databases, critically appraise and generalize literature findings to patients. Many of the physiotherapists (49%) stated they had good knowledge on how to use computer skills to carry out research. This, however, had no statistically significance, as was also the case for ability to generalize research findings to individual patients with unique characteristics. On a five-point scale, the average mean of the responses was 2.34 with a standard deviation of 1.09
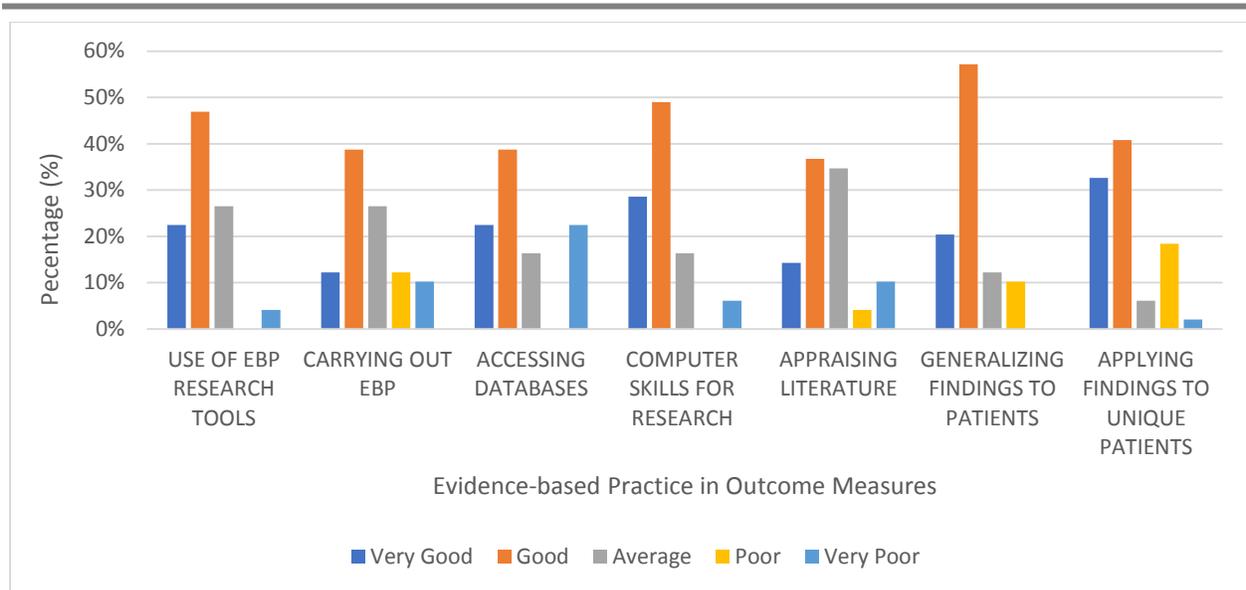
Figure 2: Evidence-based Practice in Outcome Measures

Table 5: Knowledge on Evidence-based Practice in Outcome Measures

Knowledge on:	Chi square (χ^2)	P value
Use of evidenced-based research tools such as journal, books, internet	16.8358	0.001
Carrying out evidence- based practice research	13.6600	0.008
Accessing information databases e.g. Medline, Pedro	29.8150	0.000
Using computer skills to carry out research	3.9336	0.269
Critically appraising literature from research	22.3091	0.000
Generalizing literature findings to patients	17.7965	0.000
Applying research findings to individual patients with unique characteristics	5.2929	0.259

The physiotherapists in this study used a number of outcome measurement tools. Majority (77.6%) used the Gross Motor Function Measure while very few (18.4%) used the Branden scale. As seen on the table below, the Community Balance and Mobility scale, Manual Scale and the Gross Motor Function Measure were statistically significant to the use of evidence in outcome measures.

Table 6: Outcome Measures Tools used in Hemiparetic Cerebral Palsy Rehabilitation

Outcome Measurement Tools	Frequency		Percent	Chi square (χ^2)	P value
	Yes	9	18.4		
Branden scale	No	40	81.6		
	Total	**49**	**100**	3.6589	0.056

Community Balance and Mobility Scale	Yes	22	44.9		
	No	27	55.1		
	Total	**49**	**100**	17.2292	0.000
Five Times Sit to Stand Test	Yes	11	22.4		
	No	38	77.6		
	Total	**49**	**100**	0.0705	0.791
Quality Function Measure	Yes	30	61.2		
	No	19	38.8		
	Total	**49**	**100**	1.8295	0.176
Gross Motor Function Measure	Yes	39	79.6		
	No	10	20.4		
	Total	**49**	**100**	9.0312	0.003
Quality of Upper Extremity Skills Test	Yes	29	59.2		
	No	20	40.8		
	Total	**49**	**100**	1.8295	0.176
Manual Scale testing e.g. Goniometry	Yes	25	51		
	No	24	49		
	Total	**49**	**100**	7.3893	0.007
Self-reported Experience of Activity Settings	Yes	24	49		
	No	25	51		
	Total	**49**	**100**	1.6469	0.199

Majority of the physiotherapists (38.9%) agreed they knew much about outcome measures in hemiparetic cerebral palsy rehabilitation, (42.9%) evidence in outcome measures fit into their daily practice routine and (38.8%) use of evidence in outcome measures need extra accommodation to apply to their daily practice. Majority (46.9%) also agreed they had a positive attitude towards use of evidence in outcome measures, (61.2%) evidence in outcome measures left enough room for individual patient preferences, (49%) use of evidence in outcome measures give patients insights on their physical functioning, (51%) evidence in outcome measures allow them as physiotherapists to make balanced clinical assessment. A few (38.9%) agreed that the layout of outcome measurement tools made them easy to use.

Most of the physiotherapists (42.9%), disagreed they had problems changing routines, (38.8%) were reluctant to adhere to clinical guidelines, (30.6%) use of evidence in outcomes measures would be used for disciplinary actions against them as physiotherapists and (30.6%) use of evidence in outcome measures in cerebral palsy rehabilitation requires financial compensation. On a five-point scale, the average mean of the responses was 2.44 and the response varied with a standard deviation of 0.90.

From the chi square tests revealed that knowledge of outcome measures in rehabilitation of hemiparetic cerebral palsy, evidence in outcome measures fit in with my daily practice routine, need for extra accommodation to apply evidence in outcome measures, problems with changing routines and general reluctance to adhere to clinical guidelines were significant to the use of evidence in outcome measures. Positive attitude, evidence in outcome measures leave enough room for individual patients' preferences, outcomes measures could be used for disciplinary actions against them as physiotherapists were also statistically significant in the use of evidence in outcome measures.

Figure 4: Knowledge and clinical practice on evidence-based practice

Table 7: Knowledge and clinical practice on evidence-based practice

Variables	Chi Square (χ^2)	P value
Knowledge on outcome measures in rehabilitation of hemiparetic cerebral palsy.	16.1194	0.003
Evidence for outcome measures fit in with my daily practice routine.	14.0521	0.007
Extra accommodation to apply evidence in outcome measures.	10.0063	0.019
Problems changing routines.	13.8425	0.008
General reluctance to adhere to clinical guidelines.	15.1333	0.002
Positive attitude towards the use evidence in outcome measures	10.1142	0.006
Evidence leaves enough room for individual patients' preferences.	7.7521	0.021
Evidence in outcome measures give patients' insight into their physical functioning.	1.3661	0.505
Use of evidence in outcomes measures could be used for disciplinary actions against them as physiotherapists	24.4564	0.000
Use evidence in outcome measures in rehabilitation of hemiparetic cerebral palsy requires financial compensation.	4.1675	0.384
Use of evidence in outcome measures allow for a balanced clinical assessment.	6.5747	0.087
Layout of measurement tool makes it easy to use.	1.0601	0.589

3.3. Sources of clinical guidelines available to inform outcome measures

Majority of the physiotherapists (81.6%) stated they use the internet to inform outcome measures used in the rehabilitation of hemiparetic cerebral palsy. The second most used tool was the library that gave physiotherapists access to books and articles. Very few (16.3%) accessed information through emails from subscribed websites. Found statistically was the use of emails from subscribed websites and use downloaded soft copies.
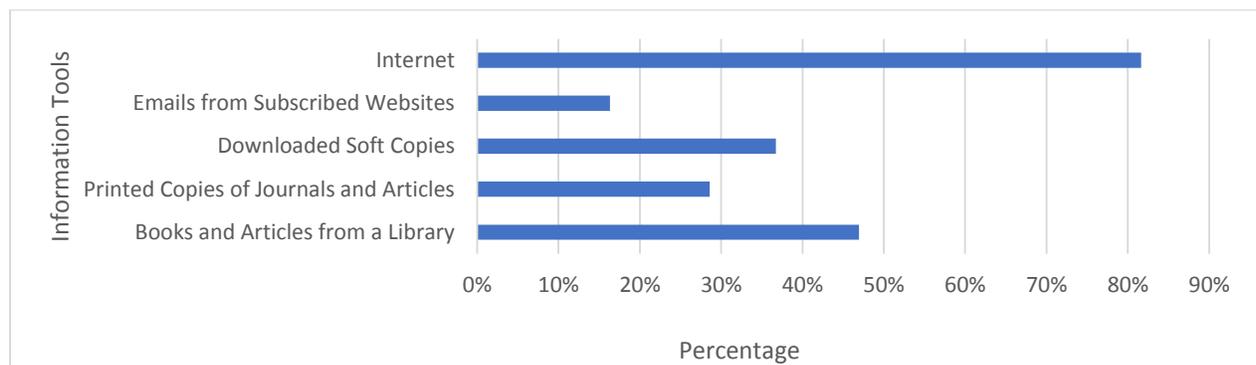

Figure 5: Sources of clinical guidelines for outcome measures

Table 8: Sources of clinical guidelines for outcome measures

Variables on Access to Information	Chi-square (χ^2)	P value
Internet	0.0907	0.763
Emails from subscribed websites	9.9593	0.002
Use downloaded soft copies	13.4368	0.000
Printed copies of journals and articles	0.5227	0.470
Books and articles from a library	2.4522	0.117

3.4. Factors Associated with the use of Evidence-based Outcome Measures

Factors associated in the use of outcome measures were examined. The study looked into the factors that facilitated and those that inhibited the use evidence in outcome measures by physiotherapists at the Kenyatta National Hospital.

Barriers in the use of evidenced-based outcome measures

Majority of the physiotherapists (61.2%) stated insufficient time was a barrier encountered in the use of evidence-based outcome measures by physiotherapists in rehabilitating hemiparetic cerebral palsy. Most of the physiotherapists (81.6%) stated lack of interest and lack of the required computer skills to carry out EBP (85.7%) were not the barriers.

The chi square test revealed that lack of access to information resources and databases such as Medline, Pedro, inability to critically appraise the literature from research and inability to apply research findings to individual patients with unique characteristics were the only barriers that was statistically significant to the use of evidence in outcome measures.

Table 9: Barriers encountered in the use of evidence in outcome measures

Barriers		Frequency	Percent (%)	Chi square (χ^2)	P value
Insufficient time	Yes	30	61.2		
	No	19	38.8		
	Total	49	100	3.7601	0.052
Lack skills on how to carry out evidence- based practice research	Yes	23	46.9		
	No	26	53.1		
	Total	49	100	1.6826	0.195
Lack of access to information resources and databases such as e.g. Medline, Pedro and professional journals	Yes	32	65.3		
	No	17	34.7		
	Total	49	100	16.0525	0.000
Lack of the required computer skills to carry out research	Yes	7	14.3		
	No	42	85.7		
	Total	49	100	1.3611	0.243
Lack of access to internet at the work place to carry out research	Yes	25	51		
	No	24	49		
	Total	49	100	3.4410	0.064
lack of access to internet while at home	Yes	24	51		
	No	25	49		
	Total	49	100	0.0196	0.889
Inability to critically appraise the literature from research	Yes	28	57.1		
	No	21	42.9		
	Total	49	100	4.6006	0.032
Lack relevant research to answer clinical questions	Yes	29	59.2		
	No	20	40.8		
	Total	49	100	1.6423	0.200

				Chi square (χ²)	P value
Lack of generalizability of the literature findings to my patient population	Yes	18	36.7		
	No	31	63.3		
	Total	**49**	**100**	1.1593	0.282
Inability to apply research findings to individual patients with unique characteristics	Yes	30	61.2		
	No	19	38.8		
	Total	**49**	**100**	4.6938	0.030
Lack of conducive working environment from colleagues and management to practice evidence-based physiotherapy	Yes	27	55.1		
	No	22	44.9		
	Total	**49**	**100**	1.6335	0.201

Facilitators in the use of evidenced-based outcome measures

From the list of facilitators examined, majority of the physiotherapists (87.8%) stated training from what was taught in college or universities on evidence-based practice was a facilitator to the use of evidence in outcome measures. However, majority (61%) did not find enough time to research, (59.2%) ability to access relevant databases and (55.1%) ability to critically appraise the literature as facilitators to the use of evidence in outcome measures.

The chi square revealed that access to internet at the facility; ability to access to relevant databases, adequate skills to carry out evidence-based practice and ability to critically appraise literature were statistically significant to the use of evidence in outcome measures. Also found statistically significant was support among colleagues and management through a conducive working environment.

Table 10: Factors Associated with the use of Evidence-based Outcome Measures

Factors	Frequency		Percent	Chi square (χ²)	P value
Training from what was taught in college/ university on EBP	Yes	43	87.8		
	No	6	12.2		
	Total	**49**	**100**	2.8568	0.091
Experience of treatments effects on prior patients	Yes	46	93.9		
	No	3	6.1		
	Total	**49**	**100**	3.0678	0.080
Information gained from practice-related courses	Yes	45	91.8		
	No	4	8.2		
	Total	**49**	**100**	1.0022	0.317
Enough time to research	Yes	19	38.8		
	No	30	61.2		
	Total	**49**	**100**	0.9870	0.320
Access to internet at the facility	Yes	27	55.1		
	No	22	44.9		
	Total	**49**	**100**	7.5282	0.006
Access to internet at home	Yes	28	57.1		
	No	21	42.9		
	Total	**49**	**100**	1.7422	0.187
Ability to access to relevant databases	**Yes**	**20**	**40.8**		
	No	29	59.2		
	Total	**49**	**100**	5.9752	0.015
Information resources were available	**Yes**	**38**	**77.6**		
	No	11	22.4		
	Total	49	100	2.6745	0.102

Adequate skills to carry out evidence- based practice research	Yes	28	57.1		
	No	21	42.9		
	Total	**49**	**100**	6.1250	0.013
Ability to critically appraise literature from research	Yes	22	44.9		
	No	27	55.1		
	Total	**49**	**100**	9.0103	0.003
Find relevant literature to answer clinical questions	Yes	22	44.9		
	No	27	55.1		
	Total	**49**	**100**	1.6335	0.201
Ability to apply research findings to individual patients with unique characteristics	Yes	21	42.9		
	No	28	57.1		
	Total	**49**	**100**	0.9800	0.322
Support among colleagues and management through a conducive working environment and regular CME	Yes	25	51		
	No	24	49		
	Total	**49**	**100**	14.9125	0.000
Interest in research	Yes	41	83.7		
	No	8	16.3		
	Total	**49**	**100**	0.5042	0.478

3.5. Binary Logistic regression Model

The regression model used to further examine the study variable. The regression analysis was used to determine the relationships between the dependent variable with the multiple independent variables specifically the binary logistic regression. This was used as the data collected was categorical in nature and the dependent variable was binary. The variables that showed significance from the chi square test, were further examined using this logical regression analysis. Pseudo R^2, which is the coefficient of determination, was 0.9592.

From the table below, the variables that showed positive linear relationship were those with the positive sign while the negative sign showed variables that had a negative linear relationship with the dependent variable. The z value (critical value) from the Z test was compared to the probability value (p value). Where the z critical value exceeded the probability value then the null hypothesis was rejected. The z values for the variables were all exceeding the p value thus rejecting the null hypotheses. This model showed an overall statistical significance in explaining the dependence of the dependent variable to the independent variables (χ^2=61.92; P =0.0000).

Table 11: Logistic Regression

Number of observation = 49
LR chi2(17) = 65.14
Prob > chi2 = 0.0000
Pseudo R^2 = 0.9592
Log likelihood = -1.3862955

Utilization	Coefficient	Standard Error	z	P>|z|	95% Interval	Confidence
Highest physiotherapy qualification	11.50512	3178.471	0.00	0.00	-6218.184	6241.195
Institution of training	5.702684	2699.362	0.00	0.998	-5284.95	5296.356
Level of advanced professional courses	-11.00485	7324.242	-0.00	0.999	-14366.26	14344.25
Attendance of professional meetings	20.13067	2934.002	0.01	0.995	-5730.408	5770.669
Number of CP patients treated	8.492938	2871.347	0.00	0.998	-5619.243	5636.229
Knowledge of Physiotherapy Management Guidelines	-10.82553	10752.49	-0.00	0.999	-21085.32	21063.66
Utilization of Physiotherapy	15.37039	4571.241	0.00	0.997	-8944.097	8974.837

Management Guidelines						
Knowledge in using of evidence-based Practice	-10.77705	9415.312	-0.00	0.999	-18464.45	18442.9
Ability to critically appraise literature from research	-7.301699	7481.805	-0.00	0.999	-14671.37	14656.77
Generalize literature findings to patients	2.312797	6658.371	0.00	1.000	-13047.86	13052.48
Gross Motor Function Measure	56.96319	11694.55	0.00	0.996	-22863.93	22977.85
Knowledge in using of evidence as a facilitator	21.69211	8937.438	0.00	0.998	-17495.36	17538.75
Positive attitude towards evidence-based practice	-20.15335	5228.078	-0.00	0.997	-10267	10226.69
Use emails from subscribed websites	-21.20576	11108.51	-0.00	0.998	-21793.49	21751.08
Inability to apply research findings to individual patients with unique characteristics	-.7358733	4554.334	-0.00	1.000	-8927.066	8925.594
Access to internet at the facility	1.058124	3982.624	0.00	1.000	-7804.741	7806.857
Constant	-84.94224	.	.	.	.	.

4. Discussion

Over the years, research has shown the importance of evidence in clinical practice. Incorporation into everyday practice is important to make informed decisions for patient care. The study sought to find out whether or not physiotherapists at the Kenyatta National Hospital utilize evidence-based outcome measures in the rehabilitation of hemiparetic cerebral palsy. The factors in this study explained 96% of the utilization of evidence in outcome measures for hemiparetic cerebral palsy rehabilitation, this being more adequate to derive conclusions and recommendations.

Physiotherapists treated an average of three patients with hemiparetic cerebral palsy a week. Yet, more than half (51%) of the physiotherapists did not use evidence in outcome measures in the rehabilitation of hemiparetic cerebral palsy. Having HCP patients was significant in necessitating use of evidence in outcome measures, acting as a motivation to carry out research. Attendance of professional meetings was vital in use of evidence in physiotherapy practice. From the study, the training institution and physiotherapy qualifications were the only sociodemographic factors significant in the use of evidence in outcome measures. Enrolling for advanced professional courses was significant. Indicating that training from learning institutions plays a major role and is a fundamental source of knowledge for evidence-based practice. Engaging in research especially on outcome measures and general clinical practice influenced the use of the evidence obtained in the research. Knowledge of evidence-based practice is fundamental to the use of evidence

in clinical practice. This was evident as knowledge on how to use research tools, access information databases, critically appraise literature and generalize findings to patients were significant to the use of evidence in physiotherapy practice. [4,9,17, 26]

Only 37% of the physiotherapists used Physiotherapy Management Guidelines for Patients with Cerebral Palsy, a very low percentage. Yet knowledge and use of these guidelines were significant in facilitating the use of evidence in outcome measures. Many outcomes measurement tools have been developed for use by physiotherapists and a number recommended in rehabilitation of cerebral palsy. The most commonly used tools were the Gross Motor Function Measure, Quality of Upper Extremity Skills Test and Quality Function Measure. Those significant to use of evidence-based practice were the Gross Motor Function Measure, Community Balance and Mobility Scale and the Manual Scale. [9,17,27]

Knowledge on outcome measures, outcome measures fitting into daily practice routine, evidence needing extra accommodation to apply to daily practice and a positive attitude towards use of evidence were significant. So was having no problems changing routines or reluctance in adhering to clinical guidelines. Perceiving that use of evidence in outcomes measures could be used for disciplinary actions on the physiotherapists effected use of evidence in practice. Use of evidence research tools, computer skills to carry out research and ability to generalize literature findings to patients were various elements of evidence-based practice that

physiotherapists practiced comfortably. However, critically appraising information from research was still lacking in many physiotherapists.[4,9,11]

There were several sources of clinical guidelines used for evidence. The internet, library and downloaded soft copies were the most used sources of clinical guidelines by physiotherapists. Downloaded soft copies was found significant. Also, essential to use of evidence yet not widely used was information emailed from subscribed research websites.[26]

Barriers to the use of evidence in outcome measures were lack of evidence-based practiced skills such as how to access information resources and databases, critically appraise the literature and applying research findings to individual patients with unique characteristics. Facilitators to use of evidence were adequate skills to carry out evidence-based practice particularly the ability to access relevant research databases and critically appraise literature from research. Other external managerial factors that were facilitators were accessing internet at the facility and support among colleagues and management through a conducive working environment and regular Continuous Medical Education. [4,12,13,19,27,28]

Recommendations

- The adoption of evidence- based practice as part of the curriculum by institutions of learning such as the Kenya Medical Training College.
- Periodically organizing refresher courses, seminars and professional meetings by the Physiotherapy Council of Kenya, Kenya society of Physiotherapy, Kenyatta National Hospital and other hospitals, to train on evidence-based practice.
- Collaborations research institutions and the Physiotherapy Council of Kenya, Kenya Society of Physiotherapy, Kenyatta National Hospital and other hospitals that will ensure current research papers and articles are easily available to physiotherapists through access to observatories and repositories.
- Formulation of Structure of Procedures and policies by the Ministry of Health that will ensure use of evidence-based practice.
- Evaluation of physiotherapy services particularly in hemiparetic cerebral palsy by the Kenya society of Physiotherapy, Physiotherapy Council of Kenya and Ministry of Health that will facilitate future

strategies to improve adoption and implementation of evidence-based practice.
- Emphasizing the importance of the use of evidence in clinical practice by the Physiotherapy Council of Kenya and the Kenya Society of Physiotherapy to its members.

6. Abbreviations and Acronyms

CP	Cerebral palsy
EBP	Evidence-based Practice
HCP	Hemiparetic Cerebral Palsy
OM	Outcome Measures

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