JPRM
Journal of Preventive and Rehabilitative Medicine
ISSN: 2415-038X (Print)

2023; 5(2): 154-160
PublishedOnline:08/11/2023
(https://journals.unza.zm/index.php/medicine/about)
DOI: https://doi.org/10.21617/jprm20232.5218

ORIGINAL ARTICLE Open Access

Impacts of the Covid-19 pandemic on standard care for stroke patients at Our Lady's Hospice of Kalingalinga and University Teaching Hospitals in Zambia

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Abstract

To cite: Mwale E, Mangaba, Chinyama C., Impacts of the Covid-19 pandemic on standard care for stroke patients at Our Lady's Hospice of Kalingalinga and University Teaching Hospitals in Zambia. JPRM 2023, 5(2): 154-160. doi: https://doi.org/10.21617/jprm20232.5217

Background: The COVID-19 pandemic has posed unprecedented challenges to healthcare systems globally. This study investigates the impact of the pandemic on routine care for stroke patients, focusing on physiotherapy services at Our Lady's Hospice of Kalingalinga and University Teaching Hospitals in Lusaka.

Methods: A quantitative cross-sectional approach was employed, enrolling 43 stroke patients. Demographic characteristics, institutional variations, and session delays were analyzed for two periods: before (October-December 2019) and during the pandemic (March-May 2020).

Results: The majority of participants (51-70 years old) demonstrated consistent attendance patterns, with females outnumbering males. Institutional shifts during the pandemic revealed decreased attendance at the University Teaching Hospitals and a slight increase at the hospice. Delays in session appointments surged during the pandemic, emphasizing the challenges faced by stroke patients.

Conclusion: This study highlights the disruptive effects of the COVID-19 pandemic on routine stroke care, emphasizing the need for adaptive healthcare strategies to ensure continuous and timely services for this vulnerable population during public health crises.

Keywords: COVID-19, Stroke patients, Healthcare disruption, Pandemic impact, Healthcare resilience.

JPRM
Journal of Preventive and Rehabilitative Medicine

Received: *6 September 2023* ***Accepted:*** *11 October 2023* ***Published:*** *8 November 2023*

INTRODUCTION

The emergence of the novel coronavirus disease (COVID-19) in 2019 has wrought profound consequences on public health, with a continuous surge in infected cases and a global death toll surpassing 250,000 as of March 2020. Clinical reports have increasingly highlighted neurological deficits associated with COVID-19, encompassing cardiovascular events and the formation of peripheral nerve lesions. Recent findings underscore a rising incidence of thrombotic events resulting in stroke among young adults, some of whom exhibited either mild symptoms or were entirely asymptomatic [1].

Beyond the direct health impacts, the COVID-19 pandemic has substantially influenced public access to healthcare facilities, particularly for conditions like stroke. Research by Mayo et al. (2020) indicates that the fear of contracting the virus has led stroke patients to hesitate in seeking medical assistance. Social distancing measures, while vital for limiting virus spread, may have inadvertently dissuaded individuals experiencing acute stroke symptoms from seeking in-person medical care, leading to delayed treatment and increased risk [2]

This reluctance to seek timely help stems from a complex interplay of factors, including patient anxiety, depression, and concerns about personal safety amidst the pandemic. The observance of stay-at-home orders may also limit the chances of friends or family recognizing stroke symptoms promptly [3]. Such delays in seeking evaluation and treatment for stroke can result in long-term disability or death [4].

A noteworthy consequence of the pandemic is the hindrance of stroke patients' access to physiotherapy services. Economic challenges, rising unemployment rates, and the closure of physiotherapy departments in health facilities contribute to the difficulty faced by stroke patients in receiving standard rehabilitation therapy [5, 6]. The fear of virus exposure may also impact the number of stroke patients accessing physiotherapy services, creating challenges in the continuum of care [6].

To address these challenges, home-based care emerges as a viable option for stroke patients, providing a means to achieve functional goals and independence in a shorter timeframe. Caregivers play a crucial role in this paradigm shift, adapting to changes in healthcare service delivery brought about by COVID-19 restrictions [7].

This study delves into the impact of the COVID-19 pandemic on routine stroke care at Our Lady's Hospice of Kalingalinga and University Teaching Hospitals (UTH). It aims to quantify the decline in physiotherapy attendance, exploring the influence of social distancing measures, fear of virus contraction, redeployment of healthcare teams, and adjustments to patient schedules [8]. The study also considers the global campaigns urging people to stay home as potential contributors to the decrease in stroke outpatient numbers.

Notably, despite the challenges posed by the pandemic, it is imperative to ensure a continuum of rehabilitation for stroke patients. While the study by Xie et al. [12] reveals disruptions in public access to hospitals, the need for realistic management guidelines to facilitate rehabilitation and satisfaction remains crucial [13]. This research endeavors to shed light on the realistic impacts in Zambia, drawing insights from clinical records at the two health institutions.

Stroke, a longstanding cause of death and disability, requires prioritized management guidelines, especially during the COVID-19 pandemic. The study anticipates contributing valuable insights for the planning of stroke management at UTH and Our Lady's Hospice of Kalingalinga. Furthermore, the findings aim to stimulate further research on the broader impact of COVID-19 on outpatient healthcare services.

MATERIALS AND METHODS

Study design

This research employed a quantitative cross-sectional study design to assess the impact of the COVID-19 pandemic on stroke patients' attendance at physiotherapy services. The study utilized records to compare the numbers of stroke patients attending physiotherapy as outpatients before the COVID-19 outbreak (October-December 2019) and during the pandemic periods (March-May 2020). Data were extracted from registers at the physiotherapy departments of two prominent institutions: the University Teaching Hospitals (UTH) and Our Lady's Hospice, both situated in Lusaka, the capital city of Zambia. The UTH, as the largest tertiary hospital in Zambia, serves as a referral center, handling complex cases from across the country. Our

Lady's Hospice, situated in Kalingalinga, specializes in providing quality Palliative Care and runs outpatient clinics, a children's clinic, and inpatient services, including facilities for terminally ill patients. The physiotherapy department at the hospice caters to a significant number of stroke patients.

A total of 43 stroke patients attending physiotherapy as outpatients at Our Lady's Hospice of Kalingalinga and UTH during the specified periods constituted the study population. The sample size was not determined through a specific sampling method; rather, it encompassed all recorded stroke patients during the designated time frames.

Data collection tool

A checklist, derived from various previous studies and tailored to meet the study's objectives, served as the data collection tool. Information gathered from patients' files and registry record books included the date of the first session during the study period, appointment frequencies organized in days, weeks, and months. The retrospective analysis covered the period before the COVID-19 outbreak and during the pandemic.

Data analysis

Statistical Package for Social Sciences (SPSS) version 22 was employed for data analysis. Descriptive statistics, such as mean and range, were reported for age and gender. Frequencies, reported as percentages, were used to determine the number of stroke patients accessing physiotherapy. A chi-square test was conducted to establish the association between the COVID-19 pandemic and routine care for stroke patients. The data analysis incorporated content analysis in a deductive approach, with results presented in tables and bar charts.

RESULTS

Sociodemographic characteristics

A total of 43 stroke patients were enrolled in this study. A sum of 32/43 (74.4%) stroke patients attended physiotherapy sessions from October-December, 2019 with a sum of 14/32 (43.8%) males and 18/32 (56.3%) females at both institutions. Meanwhile in March-May, 2020 only a total of 11/43 (25.6%) stroke patients attended physiotherapy sessions with a sum of 7/11 (63.6%) males and 4/11 (36.4%) females. In October-December, 2019 the participants' age group was between 33-86 years. 1/32 (3.1%) was 33 years, 8/32 (25.0%) were between 36-50 years, 15/32 (46.9%) were between 51-70 years and 8/32 (25.0%) were between 71-90 years old. Meanwhile in March-May, 2020 the participants' age group was between 36-71 years. Among these participants only 1/11 (9.14%) was 48 years old, 6/11 (54.54%) were between 51-70 years and 4/11 (36.4%) were between 71-90 years old as presented in Table 1.

Table 1: Socio- demographic characteristics of stroke patients (n=43)

Variable	Characteristics		Frequency		Percentage		p-value	
	2019	2020	2019	2020	2019	2020	2019	2020
Age	18-35	18-35	1	0	3.1	0		
	36-50	36-50	8	1	25.0	9.1		
	51-70	51-70	15	6	46.9	54.5	0.007	0.178
	71-90	71-90	8	4	25.0	36.4		
Gender	Male		14	7	63.6	43.8		
	Female		18	4	36.4	56.3	0.596	0.549
Institution	UTH		22	6	68.8	54.5		
	Hospice		10	5	31.2	45.5	0.072	0.105

There was very minimal delay and postponement of consistent physiotherapy treatment sessions for stroke patients before COVID-19 pandemic (October-December, 2019) at the two institutions. Figure not shown, only 3/32 (9.4%) of the participants had their physiotherapy sessions

occurring after 4 weeks and more after the initial appointment. A total of 21/32 (67.7%) of the participants had their sessions occurring within a week, 4/32 (12.5%) had their sessions scheduled after a week, 2/32 (6.25%) were reportedly coming to the hospital after two weeks while 2/32 (6.25%) had their sessions occurring after 3 weeks.

It was revealed that the total number of stroke patients presenting to the outpatient departments in 2019 (October-December) were more (32 stroke patients) in comparison with the total number of stroke patients attending physiotherapy outpatient care in March-May, 2020 (11 stroke patients). Similarly, figure 3 depicts only 1/43 (2.3%) to have been in the age range of 18-35 years old, a total of 9/43 (20.9%) to have been in the age range of 36-50 years old, 21/43 (48.8%) to have been in the age range of 51-70 years old and 12/43 (27.9%) were in the age range of 71-90 years old. There was a statistically significant association between the age of stroke patients and the number of times they were attending physiotherapy sessions ($\chi 2 = 68.146$, $P < 0.001$). The mean age was found to have been 52. With reference to figure 1, a total of 43 stroke outpatients were enrolled in this study. Majority were from October-December, 2019 which comprised a total of 32/43 (74.4%) while in March-May, 2020 only 11/43 (25.6%) were attending physiotherapy sessions at the two institutions. Among the participants, 22/43 (51.2%) were from UTH in October-December, 2019 and 10/43 (23.3%) were from Kalingalinga Hospice during the same time frame prior to the outbreak of COVID-19 pandemic. This study has also reviewed that in March-May, 2020, only 6/43(14%) were from UTH while 5/43 (11.6%) were from Our Lady's Hospice of Kalingalinga.

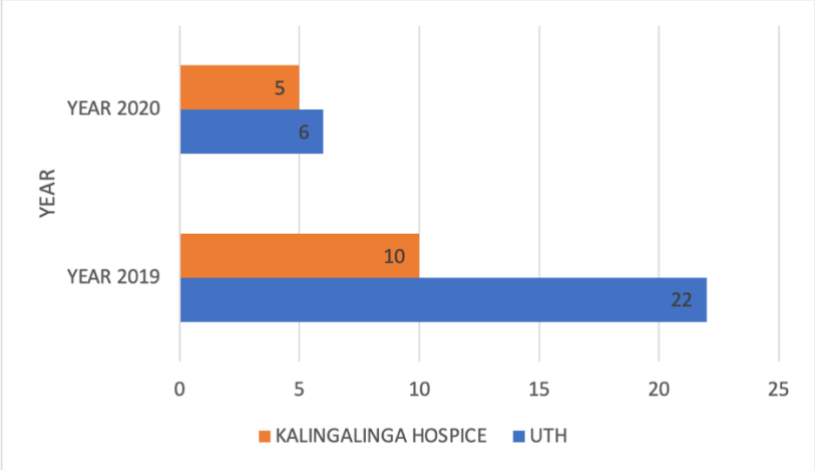

Figure 1: Number of stroke outpatients between October-December, 2019 compared to March-May, 2020 of Kalingalinga Hospice and University Teaching Hospitals

Out of 43 stroke outpatients enrolled in this study, a sum of 21/43 (48.8%) were males while a total 22/43 (51.2%) were females. In October-December, 2019 alone, 14/43 (32.6%) were males and 18/43 (41.7%) were females while in March-May, 2020 7/43 (16.3%) were males and 4/43 (9.3%) were females. However, there is no statistically significant association between gender distribution and the number of times stroke patients attended physiotherapy sessions ($\chi 2 = 11.314$, $P = 790$).

See figure 2.

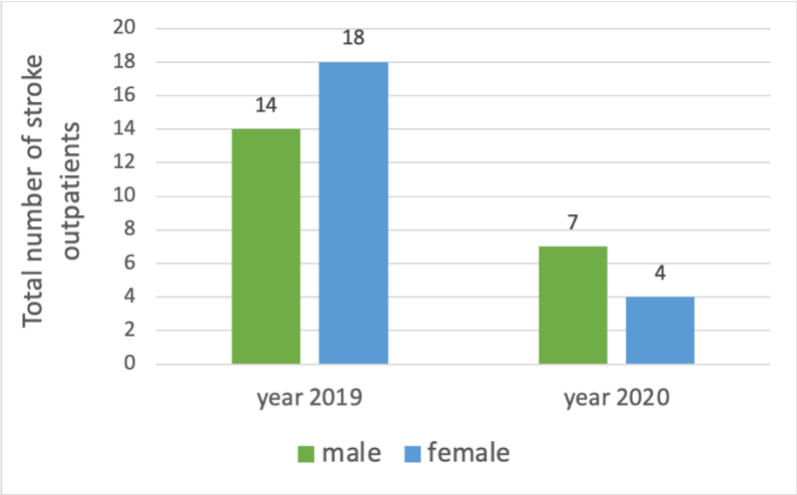

Figure 2: Gender distribution of stroke patients

DISCUSSION

The results of this study provide valuable insights into the effects of the COVID-19 pandemic on routine care for stroke patients at Our Lady's Hospice of Kalingalinga and University Teaching Hospitals. The findings encompass demographic characteristics, session delays, and institutional variations, shedding light on the challenges faced by stroke patients during the pandemic.

The age distribution of participants revealed consistent patterns across both study periods. The majority of stroke patients were between 51-70 years old, reflecting the well-established trend that stroke incidence increases with age. The gender distribution highlighted a predominance of females seeking physiotherapy sessions, aligning with broader health-seeking behavior trends observed in previous studies. This finding is contrary to the documented higher incidence of stroke in men across age classes [14]. The unexpected numerical balance between male and female groups might be attributed to females' higher health-seeking behavior during the pandemic, aligning with studies indicating greater healthcare utilization among women [15,16]. Despite the statistical significance, the lack of a direct demographic link to utilization suggests equitable yet underused physiotherapy services for stroke patients in Lusaka.

The age distribution of participants, with the majority falling within the 51-70 years age range, aligns with global trends indicating an increased risk of stroke with age [17]. The age group findings are consistent with a study in the United States, reflecting the natural progression of stroke incidence with advancing age [18].

The study uncovered shifts in patient distribution between the two institutions during the pandemic. While the University Teaching Hospitals experienced a decrease in patient representation, Our Lady's Hospice saw a slight increase. These institutional variations may be indicative of changes in patient preferences, accessibility, or health facility priorities during the challenging circumstances imposed by the pandemic. Prior to the COVID-19 pandemic, the study found minimal delays in physiotherapy treatment sessions for stroke outpatients. The majority of sessions occurred within days or weekly, emphasizing the importance of consistent and prompt care. This finding aligns with a study by Chiluba and Mwansa in 2019, emphasizing the benefits of regular physiotherapy sessions for stroke patients [19]. Similarly, in Ghana, stroke outpatients spent several hours each week participating in therapy sessions, indicating a robust pre-pandemic routine [20].

A critical observation from the results is the substantial increase in delays for physiotherapy sessions during the pandemic. Before COVID-19, the majority of sessions occurred within a week, showcasing a streamlined process. In contrast, during the pandemic, delays of more than three weeks became prevalent. This delay could be attributed to various factors, including the fear of exposure to the virus, restrictions on outpatient services, and changes in patient priorities. This represents a stark decline of 74.5% in the timely initiation of treatment sessions. A study conducted at Boston University School of Medicine in 2021 similarly reported a decline in hospitalization volumes for strokes

during the pandemic, signifying a global trend of decreased healthcare-seeking behavior during the pandemic [21].

Comparing the prevalence of delayed stroke outpatient care before and during the COVID-19 pandemic, a significant increase in delays was observed during the pandemic period. The frequency of stroke outpatients' visitations to health facilities decreased in March-May 2020 compared to October-December 2019, spanning different age groups with a percentage decrease of 25.6%. The association between age and frequency of attendance was statistically significant in 2019 and non-significant in 2020, indicating potential shifts in health-seeking behavior during the pandemic.

Similar findings were observed in Amsterdam, where a decrease in the number of patients with suspected strokes occurred during the COVID-19 outbreak [22] (Armitage and Nellums, 2020). The reluctance to seek medical attention during the pandemic, driven by fear of infection and changes in healthcare service delivery, contributed to the observed decline in stroke outpatient care.

The study demonstrated an overall majority of female stroke outpatients, with a slight shift in gender distribution after the pandemic outbreak. This aligns with findings in Amsterdam, indicating that the threshold to seek hospital care might have been higher for women during both periods [22].

The age distribution showed a steady increase in stroke outpatients with age, peaking between 51-70 years in both study periods. However, the p-value suggested an association between age and the frequency of physiotherapy sessions only before the pandemic. This contrasts with literature indicating a doubling of stroke patients with each decade after 65 years [23,24]. The study's small population might account for these discrepancies.

This discussion underscores the substantial disruptions to routine stroke care caused by the COVID-19 pandemic. Delays in physiotherapy sessions, changes in health-seeking behavior, and a shift in demographic patterns reveal the far-reaching impact of the pandemic on stroke outpatient care. Strategies to mitigate these effects and promote consistent care are imperative, especially in the context of future health crises.

CONCLUSION

These results underscore the considerable challenges faced by stroke patients in accessing routine care during the COVID-19 pandemic. Health systems need to address the increased delays and adapt strategies to ensure timely and continuous care for this vulnerable population. Future research should explore the specific reasons behind the observed institutional variations and demographic patterns, guiding targeted interventions to enhance stroke patient care resilience in the face of unforeseen challenges. In conclusion, the study results provide a comprehensive understanding of the multifaceted impact of the COVID-19 pandemic on routine stroke care, emphasizing the need for adaptable and patient-centric healthcare strategies in unprecedented times.

DECLARATION

Competing interests There were no competing interests from all authors in this study.

Funding None

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