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A Descriptive Retrospective Review On The Epidemiology Of Oropharyngeal Dysphagia In The Acute-Care Facility Of A Kenyan (Level-Six) National Hospital

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Abstract:
Oropharyngeal dysphagia (OPD) exposes patients to several health conditions and complications. This study assessed OPD presentation in the acute care facility (ACF) of a national hospital in Kenya. The objectives were to establish the demographic characteristics of adult inpatients diagnosed with OPD, determine their OPD-related comorbidities, and identify OPD traits for bedside swallowing safety in ACF. Archival records of 36 initial speech-language therapy (SLT) consultations diagnosed with OPD were reviewed. Data from these purposive records were analyzed using frequencies, percentages, means, Fisher's exact test, and the independent samples t-test. There was an equal OPD presentation between female and male participants. Their mean age was 61.25 years (SD = 21.256), with 64.3% (n = 18) at least 60 years old. On average, female participants (M = 72.3, SD = 16.43) were significantly older than their male peers (M = 72.3, SD = 16.43) (t = 3.25, p = .003). The majority (88.9%, n = 32) had at least one comorbid condition. Fisher's exact test showed that the number of comorbid conditions was independent of gender or age (p > .05). The majority (94.4%, n = 34) had at least one bedside swallowing safety trait. From the findings, it can be concluded that OPD presentation in the facility is highest among senior adults and is associated with multiple comorbid conditions. The management should encourage a multi-disciplinary approach to OPD management to ensure optimal care for OPD patients in the ACF.
Keywords: *acute care facility, comorbidity, bedside swallowing safety, oropharyngeal dysphagia***.**

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I. INTRODUCTION

Swallowing is an essential process for healthy living. In addition to propelling food and other intakes toward the digestive tract, the swallowing pathway is a fundamental protector of the airway [1]. Effective swallowing is also vital for adequate nutrition, hydration, and preventing food from entering the lungs [1], [2]. Thus, any factor that compromises the swallowing process, such as dysphagia, may have critical health implications. Dysphagia is the medical term for swallowing difficulties [3]. Persons with dysphagia experience problems with eating, drinking, chewing, salivation, and airway protection, making them prone to multiple conditions, including choking, dehydration, malnutrition, chest infections, and aspiration pneumonia [3], [4]. They are also at increased risk of institutionalization, extended hospital stays, re-admissions, rehabilitation or staying in nursing homes, and, in severe cases, mortality [5], [6], [7]. Effective dysphagia management may minimize patients' exposure to such complications through enhanced screening, early identification, and interventions, thereby improving individual patient outcomes and reducing the overall burden of the healthcare system [4], [8], [9].

Effective dysphagia management, in turn, calls for an appreciation of its epidemiology in different populations. Various dysphagia types are documented in the literature, depending on the positioning of the swallowing impairment [10], [11]. Oropharyngeal dysphagia (OPD) is among the most prevalent forms, especially in adults, and is the focus of this paper. Oropharyngeal dysphagia is characterized by difficulties moving food boluses in the upper gastrointestinal tract [12]. There is no consolidated data on the global OPD prevalence, and existing studies provide inconsistent values [13], [14]. A 2020 systematic review of 27 published primary studies with a sample size of 9,841 estimated that 43.8% (95% CI 33.3-54.9%) of the world's population had OPD as of 2021 and that its prevalence has been increasing over the years [15]. Still, significant disparities in OPD prevalence exist across different regions and specific populations [12], [16].

Similar to other dysphagia categories, OPD has a higher presence in adults than in children [14], [15]. Systematic and meta-analyses of empirical studies worldwide suggest that OPD prevalence among adults could vary from below 40% to as high as over 60%, depending on specific adult populations [13], [14]. However, most of these studies are conducted in healthcare settings, and there is limited research on OPD prevalence in the general adult population. Further, significant disparities exist across different regions, with Africa accounting for the largest share of OPD cases globally [15]. In Kenya, available estimates suggest that over 70% of patients diagnosed with stroke in the country are at risk of developing dysphagia [17]. However, there is no consolidated data on OPD prevalence in Kenya. The limited data on OPD epidemiology may hinder the effective management of the condition.

Dysphagia frequently co-occurs with other conditions. Among the most reported comorbidities associated with dysphagia include conditions that affect the nervous system (such as stroke, dementia, Parkinson's disease, and traumatic brain injury), respiratory conditions (such as aspiration pneumonia), and various cancer forms, such those of the mouth, esophagus, and head/neck [18]. However, evidence from different studies suggests that the nature and prevalence of dysphagia-associated comorbid conditions may vary with specific populations, dysphagia categories, or healthcare settings [2], [5], [6], [19]. There is limited research on OPD-related comorbidities among adults in Kenya. Establishing the various conditions that co-occur with OPD is critical for effective management in the country.

A vital aspect of dysphagia management is bedside swallowing safety. Bedside screening tests are valuable for identifying patients with OPD and those at risk of aspiration or other OPD-associated conditions [20]. Indeed, empirical evidence shows that effective bedside swallowing safety screening may reduce aspiration-related conditions and other complications associated with dysphagia [21], [22]. There are however, concerns that many bedside swallowing examinations for dysphagia patients may not be effective due to low sensitivity [22], [23]. In Kenya, a study conducted at Kenyatta National Hospital revealed no clinical records on bedside swallowing tests for persons diagnosed with stroke [24]. Such findings cast doubt on whether hospitals in the country are adequately prepared to improve the well-being of patients with OPD. Yet, there is limited research on OPD traits for bedside swallowing safety among adult inpatients.

Statement of the Problem

Oropharyngeal dysphagia has a high presence among adult populations in different settings. Individuals with OPD experience multiple problems that expose them to several health conditions and compromise their well-being. The presentation of this condition, however, including the associated comorbidities, may vary across specific populations and healthcare settings. Effective OPD management calls for health professionals (HPs) to appreciate such variabilities and understand how OPD presents itself in different populations. Yet, there is limited OPD epidemiology study in Kenya, a gap that may make it challenging to develop appropriate policies and interventions targeting individuals with this condition. Therefore, the present study assessed the OPD epidemiology in the acute-care facility (ACF) of a level-six national hospital in Kenya. Before this study, no research had been conducted on OPD presentation among adult inpatients in the hospital. Drawing on this gap, the present study aimed to identify the characteristics of adult inpatients in the hospital diagnosed with OPD.

Objectives

The study purposed to establish the OPD presentation among adult inpatients in the ACF of a national hospital in Nairobi City, Kenya. The following objectives guided the study:

(i) To establish the demographic characteristics (age and gender) of inpatients in the acute care facility of a Kenyan national hospital diagnosed with oropharyngeal dysphagia.
(ii) To determine oropharyngeal dysphagia-related comorbid conditions among adult inpatients in the acute care facility of Kenyan national hospital.
(iii) To identify oropharyngeal dysphagia traits for bed-side swallowing safety among adult inpatients in the acute care facility of a Kenyan national hospital.

The study adopted a cross-sectional, descriptive design to establish the presentation of OPD diagnosis in the ACF of a level-six national hospital in Nairobi City County, Kenya. From an initial pre-visit to the hospital conducted in July 2022 while planning for another study, the researcher noted several inpatients seeking speech-language therapy (SLT) services in the hospital's ACF. The high number of inpatients seeking SLT services in the facility motivated the interest in this study and the choice of the hospital as a study location. An analysis of available archival records isolated several comorbidities and bedside swallowing safety traits used for patients diagnosed with OPD in the hospital. The study, for the first time, explores the characteristics of adult inpatients diagnosed within the hospital's ACF, including their gender and age distribution, associated comorbid conditions, and bedside swallowing safety traits used for this population. The hospital's management may use the results to develop appropriate policies and interventions to improve its HPs' capacity to enhance the well-being of adult inpatients with OPD.

II. DATA AND METHODS

The study followed a descriptive, cross-sectional design using quantitative methods. The location was a level-six teaching, referral, and research hospital in Nairobi City County, Kenya. The hospital is equipped to provide various acute care services, including specialized rehabilitation medicine, oncology, trauma, orthopedics, renal, accident, and emergency services. The hospital was purposively chosen because it had many inpatients seeking SLT services in its ACF.

The study focused on initial files of adult inpatients in the hospital's AFC admitted with a dysphagia diagnosis from July to December 2021. Adult inpatients were targeted because past research has shown that OPD tends to be higher among adults than children [14], [15]. An archival review of hard copies of clinical notes that were simultaneously transcribed into the National Health Management Information System (NHMIS) identified 60 initial SLT files. Of the 60 initial SLT consultations, two (2) were neonates from the hospital's neonatal inpatient unit and were excluded, leaving 58 adult inpatients. These 58 formed the target population. Thirty-six (36) presented an OPD diagnosis. The 36 were purposively selected to form the study's sample. They constituted 62.1% of initial adult SLT consultations.

Data collection involved an archival review of these initial files. The files provided honest records, free of the researcher's manipulation. The variables extracted from the files included demographic characteristics, specifically gender and age, comorbidities, and interventions or procedures for adult inpatients with OPD diagnoses. These details were recorded in an review schedule for further analyses.

Data analysis entailed both descriptive and inferential statistics. Descriptive statistics, including raw frequencies, percentages, and means, were used to summarize the dataset. Cross-tabulations were also performed for the number of comorbidities by participants' gender and age categories. Fisher's exact test was then used to establish whether the associations between the number of comorbid conditions and gender/age were significant. In contrast to the Chi-square test of independence, which estimates the association between two categorical variables assuming large samples, Fisher's test performs exact comparison procedures [25]. Hence, it is considered more accurate than the Chi-square test and is ideal for small samples, especially when several cells (above 20%) of a contingency table have expected frequencies below five (5) [26]. Given the small sample size (n = 36), some expected frequencies were less than five. Therefore, Fisher's test was a suitable choice. Tests of significance were conducted at the 95% confidence level. All statistical analyses were conducted in the R statistical package version 4.3.2.

III. RESULTS

Demographic Characteristics of Adult Inpatients Diagnosed with Oropharyngeal Dysphagia

The study's first objective was to establish the demographic characteristics, specifically age and gender, of inpatients in the hospital's ACF diagnosed with OPD. For this objective, a cross-sectional analysis was conducted to compare OPD presentation in the sample across gender and age categories. TABLE I displays the results of the analysis.

TABLE I: DEMOGRAPHIC CHARACTERISTICS

Characteristic	Category	*n*	%	*N*
Gender	Female	18	50.0	36
	Male	18	50.0	
Age group	< 25 years	1	3.6	28
	25-39 years	7	25.0	
	40-59 years	2	7.1	
	60 years and above	18	64.3	

There were equal female and male representations among the initial SLT intakes with OPD diagnosis. Their mean age was 61.25 years (SD = 21.256). Thus, on average, each patient in the sample was aged above 60 years, which may be considered senior adulthood. Data on their ages was available for 28 patients only. Only these 28 are included in all analyses involving age. Only about a third of those who indicated their age (35.7%, n = 10) were below 60 years. The highest proportion (64.3%, n = 18) of were elderly individuals aged 60 and above. Thus, for this sample, OPD presentation was highest among the elderly. A rather contrasting pattern emerged when participants' ages were compared across their gender categories. Two sets of analyses were conducted for this assessment. The actual ages were first compared for females and males in the sample. The results were as shown in Fig. 1. Two-standard-deviations error bars are added to enhance visualization.

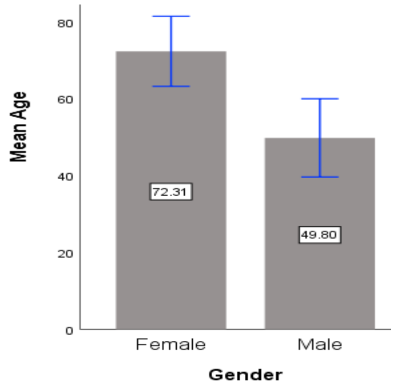

Fig. 1. Participants' Mean Ages by their Gender Categories

Averagely, female participants (M = 72.3, SD = 16.43) were older than their male peers (M = 72.3, SD = 16.43). The error bars do not overlap, suggesting that the difference in the mean ages was significant. The results of this visualization were confirmed by an independent samples t-test, which also revealed a significant difference in the mean ages (t = 3.25, p = .003).Next, a cross-tabulation was performed for the association between gender and age. As a note, the variable age was re-grouped into two categories (below 60 and ≥60) to eliminate categories with very few participants. Fisher's exact test was then used to establish whether the associations between the number of comorbid conditions and gender/age were significant. Table II shows the results. The table shows both row frequencies and percentages (in brackets).

TABLE II: A CROSS-TABULATION FOR AGE BY GENDER

Gender/age	< 60 years	60 years and above	Fisher's
Female	1 (7.7)	12 (92.3)	8.30 (.006)
Male	9 (60.6)	6 (40.4)	
Total	10 (35.7)	18 (64.3)	

Among the females, all, except one, was aged above 60, while only 40.0% (n = 6) of males were above 60, showing that females were younger than males. Fisher's test showed that the association between gender and age was significant (Fisher's = 8.30, p = .006). Hence, on average, females in the sample were older than their male counterparts.

Comorbidities Associated with Oropharyngeal Dysphagia among Adult Inpatients

The second objective was to identify the comorbidities present among adult inpatients in the hospitals' ACF diagnosed with OPD. A review of archival records revealed several neurological, cardiovascular, respiratory, and other conditions that co-occurred with OPD. They are presented in TABLE III.

TABLE III: COMORBIDITIES WITH OROPHARYNGEAL DYSPHAGIA

Comorbidity	No	Yes	N
Stroke (CVA)	24 (66.7)	12 (33.3)	36
TBI	29 (80.6)	7 (19.4)	36
Dementia	31 (86.1)	5 (13.9)	36
Hypertension	26 (72.2)	10 (27.8)	36
Atypical pneumonia	31 (86.1)	5 (13.9)	36
COVID-19	33 (91.7)	3 (8.3)	36
Other	30 (83.3)	6 (16.7)	36
Mortality	31 (86.1)	5 (13.9)	36

The third column ("yes") shows raw frequencies and percentages (in brackets) of initial OPD intakes diagnosed with various conditions. The highest occurring comorbidities were cerebrovascular accident (CVA) or stroke and hypertension. About a third of the participants were diagnosed with stroke, while 27.8% (n = 10) had hypertension. The other conditions included traumatic brain injury (TBI) (19.4%, n = 7), dementia (13.9%, n = 5), atypical pneumonia (13.9%, n = 5), COVID-19 (8.3%, n = 3), Retrovirus disease (RvD), cerebral palsy, and vocal fold palsy, anemia, Down's syndrome, and Parkinson's disease. The last six had a single occurrence in each case and are included in the "other" category. Five (5) of the OPD cases (13.9%) died during hospitalization before they were discharged from swallowing therapy. For further insights into the occurrence of these conditions among adult inpatients diagnosed with OPD, the number of comorbidities was computed for each participant. Fig. 2 shows the results of the analysis.

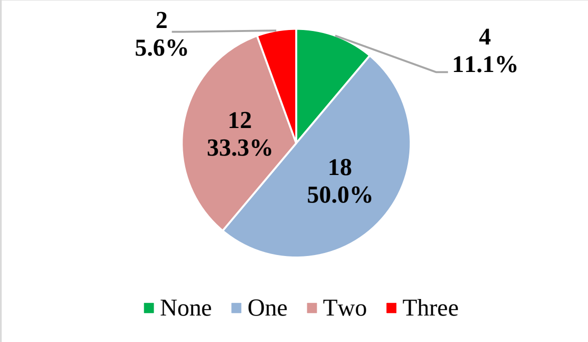

Fig. 2. Participants' Distribution by the Number of Comorbidities

The majority (88.9%, *n* = 32) had at least one comorbidity. Only 11.1% (*n* = 4) had zero comorbidity. Of the 32 participants with comorbidities, 56.3%, *n* = 18) had one co-occurring condition, while the other 43.8% (*n* = 14) had multiple (two or three) comorbidities, with 6.3% (*n* = 2) have two conditions co-occurring with OPD. The analysis next focused on OPD patients with multiple (more than one) comorbidities. The focus was to establish the various comorbidity combinations among these patients. TABLE IV shows the decomposition of cases with multiple comorbidities.

TABLE IV: MULTIPLE COMORBIDITIES BY THEIR COMBINATIONS

Combination	*n*	%
Hypertension, CVA	3	21.4
Hypertension, TBI	3	21.4
Hypertension, atypical pneumonia	1	7.1
Hypertension, dementia	1	7.1
CVA, atypical pneumonia	1	7.1
Atypical pneumonia, cerebral palsy	1	7.1
TBI, anemia	1	7.1
COVID-19, Down's syndrome	1	7.1
Hypertension, CVA, atypical pneumonia	1	7.1
Hypertension, CVA, dementia	1	7.1
Total	14	100

The most co-occurring condition among OPD diagnoses with multiple comorbidities was hypertension. Out of the 14 participants with multiple comorbidities, 71.4% (*n* = 10) had hypertension as one of the co-occurring conditions. Thus, although CVA was the most co-occurring condition with OPD, hypertension was most likely to co-occur with at least one other condition in addition to OPD. Indeed, a comparison of TABLE II and TABLE III shows that all participants with hypertension had at least one other comorbidity. About 42.9% (*n* = 6) of participants with multiple comorbidities had CVA, 28.6% (*n* = 14) TBI, and 28.6% (*n* = 14) atypical pneumonia as one of the co-occurring conditions. The most commodity combinations were hypertension-CVA and hypertension-TBI. In each case, 21.4% (*n* = 3) had these combinations. The other combinations were present in one patient only in each case.

Finally on this objective, the study sought to establish whether the occurrence of comorbid conditions varied across participants' gender and age categories. Cross-tabulations were performed between the number of comorbid conditions and these two demographic characteristics. The number of comorbid conditions was re-grouped into three (none, one, and multiple) to eliminate categories with very few participants. The results are in Table V.

TABLE V: NUMBER OF COMORBID CONDITIONS BY GENDER AND AGE CATEGORIES

Characteristic	Category	None, *n* (%)	One, *n* (%)	Multiple, *n* (%)	Total	Fisher's (*p*)
Gender	Female	2 (11.1)	8 (44.4)	8 (44.4)	18	0.65 (.890)
	Male	2 (11.1)	10 (55.6)	6 (33.3)	18	
Age	< 60 years	0 (0.0)	6 (60.0)	4 (40.0)	10	2.96 (.318)
	≥ 60 years	4 (22.2)	6 (33.3)	8 (44.4)	18	

There was no major difference in the number of morbidities due to gender categories. Among females, 88.9% (n = 16) had at least one comorbid condition. The same was true for males. Fisher's test confirmed that the association between gender and the number of comorbid conditions was non-significant (Fisher's = 0.65, p = .890). Across the age categories, all participants (100%) below 60 years had at least one comorbid condition. The corresponding proportion for those aged at least 60 years was 77.8% (*n* = 14). In other words, the comorbidity was higher among those below 60 years than their elderly peers. However, the difference was non-significant at the 95% confidence level (Fisher's = 2.96, $p = .318$). Hence, for this sample, the number of comorbid conditions was not significantly associated with participants' gender or age. An implication is that interventions for managing OPD-associated commodities in the hospital may be the same for all adult inpatients, irrespective of their gender and age categories.

Oropharyngeal Dysphagia Traits for Bed-Side Swallowing Safety Among Adult Inpatients

The final objective was to identify OPD traits for bed-side swallowing safety among adult inpatients in the hospital's ACF. A review of the hospital's archival records isolated several bed-side swallowing safety traits that were used for adult inpatients diagnosed with OPD. TABLE VI depicts the findings.

TABLE VI: OROPHARYNGEAL DYSPHAGIA TRAITS FOR BED-SIDE SWALLOWING SAFETY

Intervention/Procedure	No	Yes	N
Tracheostomy	31 (86.1)	5 (13.9)	36
Oral care	30 (83.3)	6 (16.7)	36
Oxygen delivery (A)	26 (72.2)	10 (27.8)	36
NGT	23 (63.9)	13 (36.1)	36
PEG	32 (88.9)	4 (11.1)	36
Diet modification	17 (47.2)	19 (52.8)	36
PEJ	35 (97.2)	1 (2.8)	36

Table V shows both raw frequencies and percentages (in brackets) corresponding with each trait. The most identifiable OPD trait for bed-side swallowing safety was diet modification. Slightly over a half (52.8%, $n = 19$) were on some modified oral diet. The other frequently used characteristics were nasogastric tube (NGT) and oxygen delivery. Over a third were on NGT, while over a quarter were on supplemental oxygen. Further examinations of the records revealed that about half of participants on NGT manifested signs of a back-flow. About 13.9% (n = 5) inpatients had tracheotomy *insitu* leading to post-decanulation, 11.1% ($n = 4$) were on Percutaneous endoscopic gastrostomy (PEG), and only 2.8% ($n = 1$) on percutaneous endoscopic jejunostomy (PEJ).

The analysis revealed a relatively high poor oral care among respondents. The records showed that oral care was done for only 16.7% ($n = 6$) of the 36 participants. Oral care is a critical factor in OPD management. Persons with OPD diagnosis should undertake or receive as frequent oral care as possible to minimize the occurrence of bacteria that could accidentally move down the airway while swallowing [33]. Effective oral care among OPD patients is essential to minimize the occurrence of other conditions, such as aspiration pneumonia [18]. Besides, many procedures used for dysphagia patients, such as dietary modifications, may increase a patient's exposure to multiple complications [18]. Therefore, the relatively high presence of poor oral care observed in this study should be a concern for the hospital's management. It was beyond the study's scope to establish factors underlying the high occurrence of poor oral care among adult OPD inpatients in the ACF (of a National Hospital). Irrespective of the causes, the finding emphasizes the need for increased HPs' involvement in OPD management within the facility. For further, analyses, the number of safety traits was computed for each participant. They were as shown in Fig. 3.

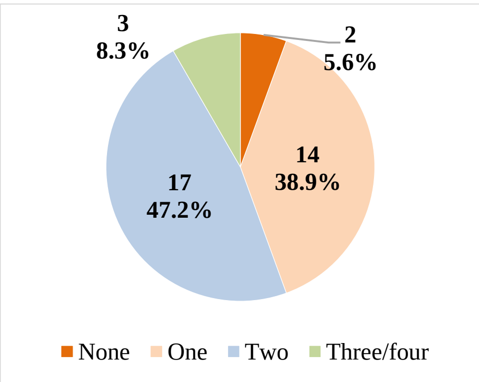

Fig. 3. Participants' Distribution by the Number of Bedside Safety Traits

Two participants had no bed-side swallowing safety trait. A possible explanation is that although they were suspected of having OPD, they were yet to be referred to SLP for accurate diagnosis. Hence, they were considered unconfirmed cases. At least two traits were used for 55.5% ($n = 20$) of the participants, while 38.9% ($n = 14$) were on a single procedure. The analysis next focused on OPD patients with multiple (more than one) comorbidities. TABLE VII shows the decomposition of cases with multiple (more than one) bed-side swallowing safety traits.

TABLE VII: MULTIPLE BED-SIDE SAFETY TRAITS BY THEIR COMBINATIONS

Combination	*n*	%
NGT, diet modification	1	5.0
NGT (to) PEG	1	5.0
Oral care, diet modification	3	15.0
Oral care, NGT	1	5.0
Oxygen delivery, diet modification	3	15.0
Oxygen delivery, NGT	5	25.0
Oxygen delivery, PEG	1	5.0
Tracheostomy, diet modification	1	5.0
Tracheostomy, NGT	1	5.0
Tracheostomy, oral care, diet modification	1	5.0
Tracheostomy, oral care, oxygen delivery, PEG	1	5.0
Tracheostomy, PEG, diet modification	1	5.0
Total	20	100

The most used combination comprised oxygen delivery and NGT. Of the 20 cases with multiple traits, a quarter were on oxygen delivery and NGT procedures. The other combinations with more than a single case were oxygen delivery-diet modification and oral care-diet modification. In each case, three patients were on these safety trait combinations. Overall, the hospital used multiple bedside swallowing safety trait combinations for OPD inpatients in the hospital's ACF.

IV. DISCUSSION

Oropharyngeal dysphagia is a prevalent condition, especially among adults, and is associated with several complications. The study analyzed data from a sample of inpatients diagnosed with OPD in the ACF of a national hospital in Nairobi. The focus was on demographic characteristics of adult inpatients in the facility diagnosed with OPD, OPD-associated comorbidities, OPD traits for bed-side swallowing safety.

The study's first objective was to establish the demographic characteristics, especially gender and age, of OPD inpatients in the ACF. There are indications that dysphagia is more prevalent in females than males across all age groups [27]. However, for this sample, OPD presentation was the same for males and females but high among older adults. The results concur with those of Farrukh et al. [28], who noted that dysphagia manifests equally across gender categories and is more pronounced in advanced age. The high OPD presence among the elderly has been attributed to multiple aging-associated comorbid health conditions, such as cerebral atrophy, nerve function deuteriation, and region-dependent muscle mass decline, which can significantly compromise the swallowing mechanism [19], [29].

The world is experiencing a gradual increase in the proportion of the elderly population. The proportion of older persons (above 65 years) worldwide was estimated to be 10% in 2021. This figure is projected to grow to 16% by 2050 [30]. Similar to many countries worldwide, the proportion of Kenya's elderly population has been increasing, albeit at a relatively slow pace. According to recent estimates, individuals aged above 65 years constituted 2.9% of the country's population in 2022, translating into a marginal increase over the 2.2% recorded in 2022 [31]. If the above results hold, then the increase in the aging population could be accompanied by a corresponding rise in OPD prevalence in the country. In that case, the hospital in this study is likely to receive increased number of OPD diagnoses. Hence, there is an increasing need for highly efficient interventions for OPD management among older persons in the ACF.

Gender-age cross tabulations offered valuable insights into OPD presentation in the ACF. On average, females in the sample were older than their male counterparts. These results contradict previous findings suggesting that dysphagia is more prevalent in females and males across all age categories [27]. In contrast, in females, OPD cases were more represent in the senior age category, while more males than females were present in the below-60 age group. Thus, the association between age and gender among OPD patients may vary with specific populations.

The analysis identified several conditions that co-occur with OPD among adult inpatients in the AFC. The above results confirm previous findings that OPD co-occurs with several conditions [2], [5], [6], [18], [19]. The high comorbidity may be because OPD is a primary or secondary condition to other conditions. In either case, the results emphasize the importance HPs' awareness and involvement in the management of these conditions to enhance the well-being of OPD inpatients. The presence of many OPD-associated comorbidities augments the ever-increasing calls for a multi-disciplinary approach to OPD management [29], [32]. High collaborations between HPs in different specialties are essential, considering the high occurrence of comorbid conditions among adult OPD inpatients in the hospital's ACF.

Overall, overall, the hospital used multiple bedside swallowing safety trait combinations for OPD inpatients in the hospital's ACF. However, diet modification was the most used bedside swallowing safety trait. Diet management assumes a vital role in OPD management. Persons with dysphagia are at increased risk of aspiration, which may lead to pneumonia and other complications [4]. Appropriate diet modifications may help minimize the exposure to aspiration [34].

V. SUMMARY AND CONCLUSIONS

Oropharyngeal dysphagia presentation is high among adults and may vary across specific populations and healthcare settings. Appreciating such variabilities allows HPs to offer holistic and customized care to patients. The present study reviewed initial files of adult inpatients diagnosed with OPD in the ACF of a level-six national hospital in Kenya. Four (4) main conclusions can be drawn from the findings. Firstly, there is an equal OPD presentation among male and female adult inpatients in the hospital's ACF. Secondly, although aggregate OPD presentation in the facility is highest among seniors (above 60 years), there are significant differences when the age groups are compared across gender categories. Female OPD inpatients in the ACF are, on average, older than their male counterparts. Thirdly, the majority of adult inpatients diagnosed with OPD in the facility have at least one comorbid condition, the number of which is independent of their gender or age group. The most occurring comorbid conditions are CVA and hypertension, while hypertension is the most co-occurring condition among OPD diagnoses with multiple comorbidities. Finally, there is a relatively high poor oral care among adult inpatients diagnosed with OPD in the facility.

The above findings are limited by its sample size and the over-reliance on descriptive analyses. Future researcher could attempt to replicate the present findings using large sample and highly controlled designed. The limitations notwithstanding, the study, for the first time, offers detailed insights into OPD presentation among adult inpatients in the hospital. The analysis of OPD presentation, comorbidities, and bed-side swallowing safety traits across gender and age categories may provide the hospital's management and HPs to offer holistic care programs customized according to individual patient needs. The researcher recommends that the government should create more awareness that provide key strategic information, evidence, and guidance to support discussions on combating OPD, with senior clinicians, managers, service providers, caregivers and funders. The researcher finally suggested the need for further studies, to identify needs of patients with OPD and develop and implement local policies to meet these needs and consequently improve quality of life.

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REFERENCES

[1]. C. Takizawa, E. Gemmell, J. Kenworthy And R. Speyer, "A Systematic Review Of The Prevalence Of Oropharyngeal Dysphagia In Stroke, Parkinson's Disease, Alzheimer's Disease, Head Injury, And Pneumonia," Dysphagia, Vol. 31, No. 3, Pp. 434-441, Mar. 2016.
[2]. D. Sun-Waterhouse, W. Kang, M. Changyang And G. I. Waterhouse, "Towards Human Well-Being Through Proper Chewing And Safe Swallowing: Multidisciplinary Empowerment Of Food Design," Journal Of Future Foods, Vol. 1, No. 1, Pp. 1-24, Oct. 2021.
[3]. I. J. Cook, "Oropharyngeal Dysphagia," Gastroenterology Clin, Vol. 38, No. 3, Pp. 411-431, Sep. 2009.
[4]. C. Bolinger And J. Dembowski, "Speech Language Pathology Consultations And Medical Outcomes For Patients With Aspiration Pneumonia," Journal Of Medical And Health Studies, Vol. 3, No. 3, Pp. 45-58, Aug. 2022.
[5]. C. Adkins, W. Takakura, B. M. Spiegel, Et Al., "Prevalence And Characteristics Of Dysphagia Based On A Population-Based Survey," Clinical Gastroenterology And Hepatology, Vol. 18, No. 9, Pp. 1970-79, Oct. 2019.
[6]. K. W. Altman, G. P. Yu And S. D. Schaefer, "Consequence Of Dysphagia In The Hospitalized Patient: Impact On Prognosis And Hospital Resources," Archives Of Otolaryngology, Vol. 136, No. 8, Pp. 784-789, Aug. 2010.
[7]. H. S. Bonilha, "The One-Year Attributable Cost Of Post-Stroke Dysphagia," Dysphagia, Vol. 29, No. 5, Pp. 545–552, Oct. 2014.
[8]. K. Head, K. Weeks, A. Stroud And A. M. Coll, "A Survey Of Dysphagia Screening Practices Across England And Wales," International Journal Of Therapy And Rehabilitation, Vol. 14, No. 9, 409-417, Sep. 2007.
[9]. J. A. Hinchey, T. Shephard, K. Furie Et Al., "Formal Dysphagia Screening Protocols Prevent Pneumonia," Stroke, Vol. 36, No. 9, 1972-76, Aug. 2005.
[10]. S. A. Azer, A. K. Kanugula And R. K. Kshirsagar. "Dysphagia," Statpearls. Treasure Island: Statpearls Publishing, 2023.
[11]. D. C. Wolf. "Dysphagia," In H. K. Walker, W. D. Hall And J. W. Hurst, Eds., Clinical Methods: The History, Physical, And Laboratory Examinations. Butterworth-Heinemann: Butterworths, 1990.
[12]. L. Rofes, V. Arreola, J. Almirall Et Al., "Diagnosis And Management Of Oropharyngeal Dysphagia And Its Nutritional And Respiratory Complications In The Elderly," Gastroenterology Research And Practice, Vol. 1, No. 1., Pp. 1-13, Aug. 2011.
[13]. M. Ribeiro, P. A. Miquilussi, F. M. Gonçalves, Et Al., "The Prevalence Of Oropharyngeal Dysphagia In Adults: A Systematic Review And Meta-Analysis," Dysphagia, Vol. 1, No. 1, 1-13, Aug. 2023.
[14]. M. C. Rivelsrud, L. Hartelius, L. Bergström, Et Al., "Prevalence Of Oropharyngeal Dysphagia In Adults In Different Healthcare Settings: A Systematic Review And Meta-Analyses. Dysphagia, Vol. 38, No. 1, 76-121, Feb. 2023.
[15]. F. Rajati, N. Ahmadi, Z. Naghibzadeh And M. Kazeminia, "The Global Prevalence Of Oropharyngeal Dysphagia In Different Populations: A Systematic Review And Meta-Analysis," Journal Of Translational Medicine, Vol. 20, No. 1, Pp. 175-187, Apr. 2022.

[16]. P. Zuercher, C. S. Moret, R. Dziewas Et Al., "Dysphagia In The Intensive Care Unit: Epidemiology, Mechanisms, And Clinical Management," Crit Care, Vol. 23, No. 103, Pp. 1-12, Mar. 2019.
[17]. R. Martino., N. Foley And S. Bhogal, "Dysphagia After Stoke: Incidence, Diagnosis, And Pulmonary Complications," Stroke, Vol. 36, No. 12, Pp. 2756-63, Dec. 2005.
[18]. A. M. Lim, "Basic Oral Care For Patients With Dysphagia: A Special Needs Dentistry Perspective," Journal Of Clinical Practice In Speech-Language Pathology, Vol. 20, No. 3, Pp. 142-149, Nov. 2018.
[19]. S. Mehraban-Far, J. Alrassi, R. Patel, Et Al., "Dysphagia In The Elderly Population: A Videofluoroscopic Study," American Journal Of Otolaryngology, Vol. 42, No. 2, 1-14, Apr. 2021.
[20]. J. A. Cichero And K. W. Altman, "Definition, Prevalence, And Burden Of Oropharyngeal Dysphagia: A Serious Problem Among Adults Worldwide And The Impact On Prognosis And Hospital Resources," In P. Clavé, And J. Cichero, Eds., Stepping Stones To Living Well With Dysphagia, Pp. 1-35, Berlin: Karger, 2012.
[21]. H. E. Hassan And A. I. Aboloyoun, "The Value Of Bedside Tests In Dysphagia Evaluation," Egyptian Journal Of Ear Nose Throat And Allied Sciences, Vol. 15, No. 3, Pp. 197-203, Jan. 2014.