IMAGE: A MAP OF THE STARS OF THE ORION CONSTELLATION

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ABSTRACT

The purpose of this research is to analyze prevalence and incidence studies on the seasonality of trauma epidemiology with regard to distal radius fractures through a systematic review, in which cross-sectional and longitudinal studies were selected regarding the analysis of clinical and epidemiological variables associated with fractures of the distal radius. For this, MEDLINE®, LILACS, SCIELO and PUBMED platforms were used. From a total of 45,634 articles, after applying the inclusion and exclusion criteria, 18 scientific publications were eligible among the 64 read in full. According to the review, it appears that there is seasonality in distal radius fractures according to the seasons of the year. The decreased bone strength of these patients was associated with an increased risk of fracture in 10 years and individuals from a rural environment with less hospital support have a greater chance of not having an adequate post- fracture follow-up.

Keywords: distal radius fractures; observational studies; cross-sectional studies; longitudinal studies.

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Distal Radius Fracture: A Systematic Review of Observational Studies

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ABSTRACT

The purpose of this research is to analyze prevalence and incidence studies on the seasonality of trauma epidemiology with regard to distal radius fractures through a systematic review, in which cross-sectional and longitudinal studies were selected regarding the analysis of clinical and epidemiological variables associated with fractures of the distal radius. For this, MEDLINE®, LILACS, SCIELO and PUBMED platforms were used. From a total of 45,634 articles, after applying the inclusion and exclusion criteria, 18 scientific publications were eligible among the 64 read in full. According to the review, it appears that there is seasonality in distal radius fractures according to the seasons of the year. The decreased bone strength of these patients was associated with an increased risk of fracture in 10 years and individuals from a rural environment with less hospital support have a greater chance of not having an adequate post-fracture follow-up.

Keywords: distal radius fractures; observational studies; cross-sectional studies; longitudinal studies.

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I. INTRODUCTION

Distal Radius Fractures (DRF) are anatomically defined as those occurring within 3 cm of the radiocarpal joint, corresponding to one sixth of all fractures treated in emergency units and with great cost to the health system.[1,2]

The DRF have significant epidemiological and clinical-surgical importance due to the high prevalence, that is, up to 31%.[3] In addition, the complexity of the lesions varies according to the involvement of adjacent anatomical regions, implying different prognoses whose treatment may be different. conservative or surgical.[4-6]

Observational Studies (OS) have different degrees of reliability, and can be compared to a photograph of the population (cross-sectional study) or temporal analysis of the sample in question (longitudinal study).[7]

Thus, the present scientific dissertation aims to explain the OS of these two methodologies about the epidemiology associated with the trauma of DRF and factors implicating the seasonality of the prevalence and incidence.

II. METHODOLOGY

The methodology used was the systematic review, in which the research platforms MEDLINE® and LILACS for BIREME, PUBMED and SCIELO were used. In this context, according to the Descriptors in Health Sciences platform and with descriptors in Portuguese, English and Spanish,

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the following descriptors were selected: “Bone fracture” and “Radius fracture”; “Wrist joint”; “radius fracture”.

The inclusion criteria corresponded to complete and available articles, from the last five years (October 30, 2016 the same date of the year 2021), only with human beings, OS of the transverse and longitudinal types and that addressed the distal third of the radius as an outcome.

Exclusion criteria were articles that did not address radius fracture, protocol validation studies, case reports and series, systematic reviews, meta-analysis, randomized controlled trials and case-control studies.

Table 1 summarizes the methodology, sample size, study design, primary out- come result, gender and age group included in the studies eligible for this systematic review.

Table 1: Methodological aspects associated with each type of study

Author	Methodology	Sample	Study Design	Primary outcome	Sex	Age Range
Acosta-Olivo et al.	Cross-sectional Prospective	114	Obesity has been assessed to increase the severity of DRF.	There was no correlation between obesity and severity of DRF.	30 M (26,3%) and 84 F (73,6%)	From 18 to 84 years old (average of 52,9 years old)
Dardas et al.	Longitudinal Prospective	75	The ability of distal unicortical screws to maintain operative DRF reduction in adults was verified.	Unicortical distal fixation during volar locking plate fixation effectively produced operative reductions in DRF.	21% M and 79% F	≥ 18 years (Average 54 ± 15 years)
Zhang et al.	Retrospective Longitudinal	93	To verify the results of the volar locking plate for the treatment of type B DRF in- volving the semilunar facet and compare with fractures without this involvement.	The involvement of the semilunar facet would have a slower recovery when compa- red to DRF without the involvement of this topography.	63 M and 30 F	From 18 to 84 years old (median 39,8 years old)
Ogliari et al.	Retrospective Longitudinal	25.454	It aimed to explore fragility fractures in adults over 50 years of age, including DRF.	The climate can modulate the seasonality of fractures and, consequently, the use of health service resources.	6.361 M (25%) and 19.093 F (75%)	≥ 50 years (median 67 years)
Johnso et al.	Retrospective Longitudinal	8.380	To verify the incidence of fractures of the wrist joint in relation to the hot and cold seasons of the year.	There was an increase in the rate of this type of fracture in the coldest seasons of the year.	2678 M and 5.702 F	From 18 to 104 years old (average 56,4 years old)
Zhang et al.	Longitudinal Prospective	88	To verify the benefit of rehabilitation regarding RML due to DRF in individuals over 65 years of age.	Benefit of rehabilitation in case of RML due to DRF with less than 3 months of fracture.	29 M and 59 F	From 71,69 ± 6,232 years
Kruppa et al.	Retrospective Longitudinal	201	In order to determine the rate of complications of forearm fractures after treatment with intramedull- ary elastic nails.	Refracture, vicious junction, rupture of the extensor pollicis longus tendon, infection and limitation of range of motion.	148 M (73,6%) and 53 F (26,4%)	From 3 to 16 years (aver- age of 9,7 years)
Wang et al.	Retrospective Longitudinal	410	Determine sociodemo- graphic aspects associated with fractures, including DRF.	The radius (24.9%) was the most common fracture site. The most common etiology was playing basketball (34.0%) and FR (26.2%) in the 12-15 age group; playing bas- ketball (31.7%) and FR (23.0%) in the 15-18 age group.	335 M and 75 F	From 6 to 18 years old (From 13,5 ± 3,1 years old)

Egund et al.	Longitudinal Prospective	133	The primary outcome was DASH arm, shoulder, and hand disability in the first 12 months following DRF.	Men older than 65 years with FRD were more likely to have disability after the fracture, regardless of the radio- graphic result.	133 M (100%)	21 to 88 years old (average 54 years old)
Baxter et al.	Longitudinal Prospective	70.801	It was to determine the pro- portion of closed DRF with- out medical follow-up and whether different hospitals and doctors are treating these injuries differently in terms of follow-up after initial care in the emergency de- partment.	20.8% (n=14,742) of the frac- tures were treated without continuous medical follow-up after the initial care; small hospitals and living in a rural area were significantly associated with lack of follow-up.	43.488 M (61,4%) e 27.313 F (38,6%)	From 2 to 14 years old
Südow and Navarr o	Longitudinal Prospective	90.970	Determine the incidence of DRF.	Significant variation in inci- dence over the years with higher peaks in May (68.7/ 10,000 person-years) and September (73.2/ 10,000 person-years).	60,3% M e 39,7% F	From 0 to 17 years (aver- age 10 years)
Olech et. al.	Cross- sectional Prospective	392	To verify if there were epide- miological changes in pedi- atric patients (<18 years) and adults (>18 years), com- paring the period before and during the pandemic.	Decrease in the number of hospitalizations of pediatric and adult patients with DRF during the COVID-19 pan- demic.		157 <18 years and 235 ≥ 18 years
Rundgre n et al.	Longitudinal Prospective	31.807	Determine SSI after DRF surgery by different tech- niques (plate fixation, percutaneous pinning and exter- nal fixation).	SSI rate corresponded to rates of 5% (plate fixation), 12% (percutaneous pinning) and 28% (external fixation).	6.648 M (21%) e 25.159 (79%)	≥ 18 years
Nagai et al.	Retrospective Longitudinal	253	To assess the relationship between PIM, activities of daily living and subsequent falls in elderly patients with DRF.	The use of these made it diffi- cult to improve activities of daily living and was associated with an increase in subse- quent falls.	36 M e 217 F	≥65 years old
Hooper et al.	Retrospective Longitudinal	280	Determine the importance of physical activity prior to DRF as well as functional outcomes through patient self-report.	Higher activity levels prior to DRF were associated with better patient-reported functional outcomes after distal radius fracture.	36 M e 244 F	≥ 60 years
Chou et al.	Retrospective Longitudinal	88	To determine whether pa- tients with idiopathic PD had a worse outcome after surgery when compared to the group without PD.	Patients with idiopathic PD with DRF had a higher failure rate and shorter time to treatment failure compared to the group without idiopathic PD.	12 M (25%) e 66 F (75%)	≥ 18 years
Nagai et al.	Retrospective Longitudinal	229	To investigate the associa- tion between nutritional sta- tus and functional prognosis in elderly patients after DRF.	There was a positive associa- tion between malnutrition and the lower ability to resume daily activities afterwards; low serum albumin levels may in- crease the risk of subsequent falls.	31 M (86,5%) e 198 F (13,5%)	≥65 years old
Orland et al.	Retrospective Transversal	258	Assess the frequency with which children aged <10 years undergo potentially unnecessary closed reduc- tion associated with sedation and costs.	27% were considered poten- tially unnecessary with a cost increase of about 8 times.	156 M (60%) e 102 F (40%)	<10 years

The flagged article did not distinguish by gender

III. RESULTS

According to the standardized terms of the DECS platform, a total of 45,634 articles were obtained and, after applying the inclusion and exclusion criteria, 252 publications were captured. After proper reading of the title and abstract as well as

elimination of duplicates, 64 articles were selected for reading in full, with 18 being eligible for this systematic review. The flowchart (figure 1) demonstrates such steps of the methodological process.

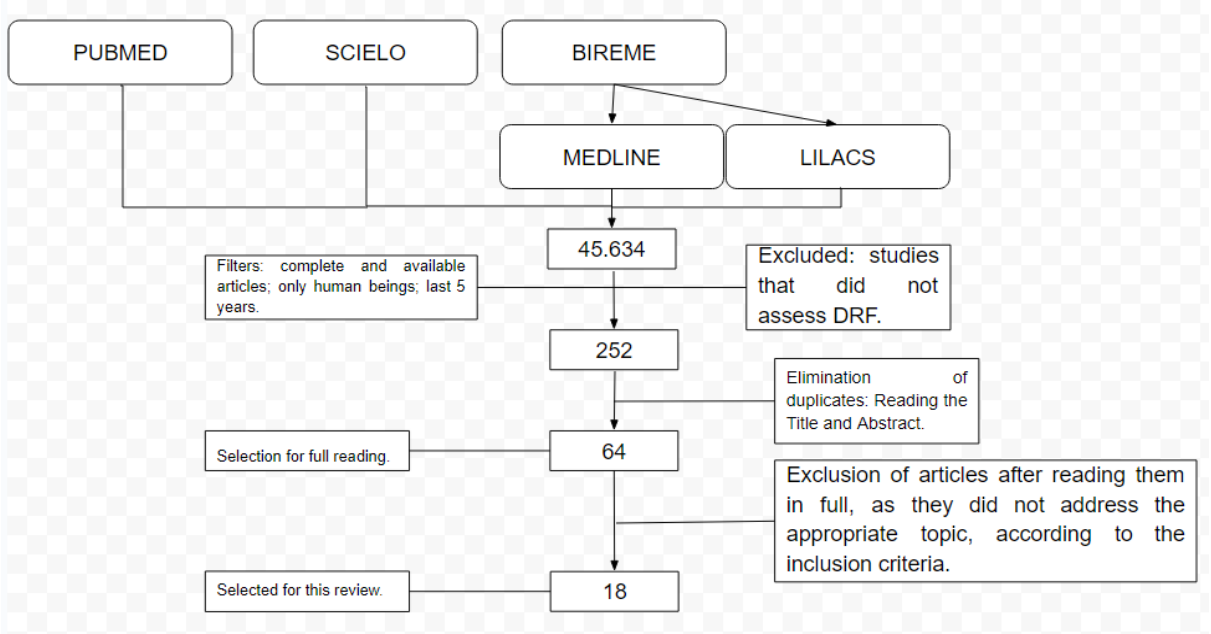

Figure 1

Table 2 explains the fracture rate according to the AO[8] classification (types A, B and C) and the frequencies of accidents associated with the trauma mechanism.

Table 2: Rate of DRF According to the AO Classification and Mechanisms Associated With Trauma

Author	Fracture Rate According to the AO Classification	Trauma Mechanism
Acosta-Olivo et al.	A (20,18%); B (32,45%); C (47,37%)	Type A fractures were the most common and the most severe type of fracture, type C, was the least common in all patients (normal weight, over- weight, obese)
Dardas et al.	A (40%); B (12%); C (48%)	The mechanisms most associated with trauma were falls (68%) and falling from standing height (19%)
Zhang et al.	B1 (60,2%); B2 (25,8%); B3 (14,0%)	Electric bicycle accidents were the most common cause (51.6%) of all injuries, followed by falls from heights (24.7%), motor vehicle accidents (18.3%) and sports injuries (2.2%)
Ogliari et al.		
Johnson et al..		
Zhang et al.	A (19.32); B (12.50); C 65.91)	
Kruppa et al.		Drop (playing, jumping, skating, others) of 98.0% Polytrauma (motor vehicle accident; fall from a height of 3 m), two accidents (1.0%) No adequate trauma (osteogenesis imperfecta; juvenile bone cyst) 2 (1.0%)
Wang et al.		The most common etiologies were playing basketball (27.5%) in the male group and walking (24.0%) in the female group. The most common etiologies and locations were playing basketball (34.0%) and FR (26.2%) in the 12-15 age group, playing basketball (31.7%) and FR (23.0%) in the age 15 to 18 years The most common FR fracture sites were in basketball (28.9%) and cricket (37.5%) players.
Egund et al.	A (26%); B (19%); C (57%)	About two-thirds of fractures occurred after a fall from standing height. Men aged <65 years, compared to those aged ≥65 years, had a higher pro- portion of fractures due to trauma, including falls from height/level (30% vs 3%) and traffic accidents (13% vs 9%).

Baxter et al.	Closed low-grade fractures; AO classification not analyzed in the outcome	All patients approached were low-grade closed DRF
Südow and Navarro		
Olech et. al.		
Rundgren et al.		
Nagai et al.	Group with PIM (N=107): A (9.3%); B (39.3%); C (51.4%) Group without PIM (N=146): A (2.1%); B (35.6%); C (62.3%)	34 patients had subsequent falls. The PIM group reported one vertebral fracture, one hip fracture, and 22 bruises. The non-PIM group reported one clavicle fracture, one acute subdural hematoma, and 11 hematomas.
Hooper et al.		
Chou et al.	Group with PD (N=23): A (47.8%); B (4.3%); C (47.8%) Non-PD group (N=65): A (44.6%); B (27.7%); C (27.7%)	Loss of reduction was observed in 17.4%, nonunion of the fracture in 13.0%, and persistent pain was observed after 6 months in 8.7% of patients with PD
Nagai et al.	A (5,6%); B (35,8%); C (58,5%)	
Orland et al.		

Flagged articles did not analyze the fracture rate according to the AO severity classifi- cation and/or the rate associated with trauma in its outcome.

IV. DISCUSSION

When assessing whether obesity increases the severity of DRF, in one study, it was found that there was no correlation based on a sample of 114 patients, although this population is more susceptible to fractures in this region.[9]

A study aimed at quantifying the ability of unicortical distal screws to maintain the operative reduction of DRF in adults, in a sample of 75 patients undergoing volar fixation with a locking plate, resulted in data that corresponded to effective fixation and maintained the operative reductions in DRF, whereas it had the potential to decrease the incidence of extensor tendon ruptures in a 12-week post-surgical follow-up.[10]

Comparing type B DRF with and without involvement of the semilunar facet treated with a volar blocking plate, we retrospectively analyzed the individuals with involvement of the semilunar facet (n=21) and the others without this involvement (n = 72), it was found that patients with DRF with involvement of the semilunar facet would have slower recovery with regard to wrist flexion, supination, ulnar deviation and greater risk of loss of both reduction and final joint step.[11] Thus, fractures of DRF with involvement of the semilunar facet present clinical factors of severity and longer time for convalescence of the bone material.

When studying patients aged 50 years and over with a total sample of 25,454 fractures, of which 42.1% corresponded to fractures of the radius or ulna, Ogliari et al.[12] verified that most of the injuries in this region occurred in the winter period, in which frosty days were directly associated with fractures of the radius or ulna. In addition, confirmation of the increase in accidents involving DRF in colder seasons can help direct financial resources from health services and increase the number of employees available during this period. Thus, considering the temperate climate of the study site, it can be suggested that other parts of the globe, including the southern region of Brazil, may have a similar rate of involvement, which should be corroborated by future studies and evaluated according to the possibility of greater exposure. to falls from standing height by the general population and higher risk of falls in geriatric individuals on slippery floors.

Another study looked at the profile of DRF in relation to climate, in which a retrospective analysis with 8,380 patients verified wrist joint fractures in all women and men aged ≥50 years, and demonstrated an increase in the rate of this type of fracture with the reduction in temperature (milder seasons of the year) and the average rate was 2.9 fractures/day out of a total of 2,922 days analyzed and an increase of 840 in the number of

procedures during the winter period.[13] Thus, in regions with a cold climate, health services can direct resources to this patient profile.

Furthermore, Range of Motion Limitation (RML) after DRF was studied in 88 geriatric patients, in whom daily rehabilitation was applied for 30 minutes for 8 weeks after the fracture, and it was verified that individuals with early stiffness (<3 months after the fracture) had greater RML compared to those with late stiffness (>3 months).[14] A cohort with a sample of 202 children (up to 16 years of age) addressed the complication rate of forearm fractures after treatment with stable intramedullary elastic nails, which correspond to in situ refracture (1.5%), refracture after nail removal (3.5%), vicious junction (1.0%), rupture of the extensor pollicis longus tendon (1.5%), infection 1 (0.5%) and reduced range of motion (1.0%).[15]

Wang et al.[16] analyzed, by means of a longitudinal retrospective study, 410 children and adolescents (aged from 6 to 18 years), whose aim was to characterize polytrauma due to sports, in which it was verified that radius fractures were the most common (24.9%) relative to other long bones. In addition, males had a significantly higher rate of fractures and associated nerve injuries, with peaks of incidence in the summer and the most associated sport was basketball (28.9%).

A prospective longitudinal study followed patients with DRF for 12 months in order to verify the future risk of fracture in two groups, that is, young versus elderly men (65 years or older), whose result associated that the second group was more prone to having a disability in working with hands, arms and shoulder ipsilateral to the injury, regardless of the macroscopic radiographic finding. Furthermore, the decreased bone strength of these patients was associated with an increased risk of fracture at 10 years.[17]

Furthermore, another population-based retrospective longitudinal analysis sought to determine the proportion of DRF treated without adequate medical follow-up after initial care, as well as the type of medical care provided by different hospitals and physicians. And, from the analysis of 70,801 fractures, it was found that 20.8% (n=14,742) of fractures were treated without continuous medical follow-up after initial care and treatment by a small hospital emergency department, pediatric specialty or subspecialty in a pediatric emergency, were more likely to result in no follow-up. In addition, small hospitals and living in a rural area were significantly associated with non-monitoring after the injury.[18]

A retrospective observational cohort with the aim of determining the incidence of DRF, in which 90,970 DRF were identified between the years 2005 to 2012, whose incidence rate during the entire period analyzed was 52.9/10,000 people/year, with the distribution between genders equal in the age group from 0 to 10 years old, however, higher in males from 11 to 17 years old. Furthermore, there was a significant variation in incidence throughout the year, with higher peaks in May (68.7/10,000 person-years) and September (73.2/10,000 person-years).[19] Thus, considering that the period ob- served of higher incidences corresponds to milder temperatures, it can be suggested that such incidence may be related to sports activities or activities of greater impact.

A prospective cross-sectional study compared pediatric patients (<18 years) and adults (≥ 18 years) in two moments, before and during the covid-19 pandemic, with the aim of characterizing variation in epidemiological data on hospitalization and the need for a surgical approach. The first group showed a decrease in hospitalizations (3.8%), hospitalizations with surgical treatment (11.5%) and patients undergoing conservative treatment (7.2%). The adult population showed a decrease in the rate of hospitalizations treated surgically (12.7%) and in the number of individuals undergoing conservative treatment (30.3%), while those who underwent surgical treatment with fixation by volar plate increased substantially (275%).[20]

Rundgren et al.[21] with the aim of determining Surgical Site Infections (SSI) after DRF surgery using different techniques (plate fixation, percutaneous pinning and external fixation), as well as factors associated with SSI in a sample of

31,807 patients, found that the rate of SSI corresponded to rates of 5%, 12% and 28%, respectively. Furthermore, it was found that the type of open fracture and being male were associated with SSI.

Nagai et al.[22] evaluated the relationship between Potentially Inappropriate Medications (PIM), activities of daily living and subsequent falls in elderly patients with DRF, aged 65 years and over and divided into two groups (a group using PIM and a group not using PIM). The prevalence of prescriptions for PIM was 42.3% and their use hindered the improvement in activities of daily living and was associated with an increase in subsequent falls.

A retrospective cohort study included 304 adults aged 60 years or older who had isolated DRF and divided into two groups: group I with 187 participants (volar locking plate, percutaneous pinning or external fixation) and group II with 117 individ- uals (treated with a cast) and classified into highly and less active based on the degree of physical activity prior to the injury. The results suggested that more physical activity practiced before the injury was associated with better functional results and patient- reported self-improvement. Thus, supervised physical activity, due to the risk of falls, should be encouraged in these patients.[23]

Another research, when evaluating Parkinson's Disease (PD) in two groups with (n=23) and without (n=65) the disease regarding the best outcome in patients with DRF, in which both groups underwent open reduction followed by of internal fixation, with the aim of verifying whether the PD group would have a lower result after surgery compared to non-PD patients, it was found that there was a shorter time and a significant rate of treatment failure, these being 39.1% and 4.6%, respectively.[24]

A retrospective longitudinal study with the objective of investigating the asso- ciation between nutritional status and functional prognosis in elderly patients with DRF in elderly individuals, found that a positive association between malnutrition and the ability to resume activities of daily living after DRF and low levels of albumin serum levels may increase the risk of subsequent falls, and a rate of 13.5% of patients with DRF had malnutrition.[25]

When assessing the frequency with which children younger than 10 years old undergo a potentially unnecessary closed reduction associated with sedation for the DRF procedure and the cost implications, Orland et al.[24] found that among 258 participants, 142 (55%) underwent this procedure and 38 children (27%) were considered potentially unnecessary with a cost increase of about 8 times the amount and the fractures could have been treated with in situ immobilization.[26]

V. FINAL CONSIDERATIONS

It is verified that there is seasonality in the DRF regarding the seasons. The reduced bone strength of these patients was associated with an increased risk of frac- ture in 10 years, and individuals from a rural environment have less hospital support and a greater chance of not having adequate post-fracture follow-up. In addition, obe- sity was not a serious factor for DRF recovery.

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Attitude and Ethical Behavior of Healthcare Providers as Antidotes of Health Service Consumer Satisfaction in Mgbuoshimini Primary Health Centre, Port Harcourt, Nigeria

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ABSTRACT

Health service consumers' satisfaction with the services they receive has been a challenge over the past decade, and this has been attributed to many factors that diverse scholars have investigated using different variables. In this study, the attitude and ethical behaviour of healthcare providers as antidotes to health service consumers' satisfaction in the Primary Health Centre at Mgbuoshimini, Port Harcourt, Nigeria, were investigated. A cross-sectional descriptive research design was used to select participants from pregnant women, nursing mothers, couples for family planning, and sick patients. The data were analysed using descriptive statistical tools. The results of the grand total response values were 400 (100%) and strongly agree had 190 (47.5%), agree had 160 (40%), 390 (100%) and strongly agree had 260 (66.7%), agree had 100 (25.6%), and strongly disagree had 13 (3.3%).

Keywords: attitude, ethical behaviour, health service consumer, healthcare provider.

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ABSTRACT

Health service consumers' satisfaction with the services they receive has been a challenge over the past decade, and this has been attributed to many factors that diverse scholars have investigated using different variables. In this study, the attitude and ethical behaviour of healthcare providers as antidotes to health service consumers' satisfaction in the Primary Health Centre at Mgbuoshimini, Port Harcourt, Nigeria, were investigated. A cross-sectional descriptive research design was used to select participants from pregnant women, nursing mothers, couples for family planning, and sick patients. The data were analysed using descriptive statistical tools. The results of the grand total response values were 400 (100%) and strongly agree had 190 (47.5%), agree had 160 (40%), 390 (100%) and strongly agree had 260 (66.7%), agree had 100 (25.6%), and strongly disagree had 13 (3.3%). The overall results were strongly agreeing (66.7%) and agreeing (25.6%); these connote that the attitudes and ethical behaviours of the healthcare providers towards healthcare service consumers in the primary healthcare facility were poor and that healthcare providers do not execute good ethical behaviour towards health service consumers in the facility. The study established that the attitudes and ethical behaviours of healthcare providers towards health service consumers in the primary healthcare facility were poor, leading to low levels of health resource consumption, low patronage image promotion, and consumers' loss of confidence in the service provider. Therefore, the government should put mechanisms in place to ensure a positive attitude and favourable ethical behaviour among healthcare providers, and individual healthcare providers should also acquire soft skills to improve their attitude and ethical behaviour.

Keywords: attitude, ethical behaviour, health service consumer, healthcare provider.

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I. INTRODUCTION

According to the Holy Bible, human beings were created by the Almighty God at the beginning of time to experience everything on earth to the fullest, including perfect health (Genesis 1:26-31).

Because of man's refusal to follow God's instruction, which goes beyond his ongoing struggle to maintain a high standard of healthcare, everything broke apart and mankind was unable to regain the level of health that God had established for humans (Genesis 3:1–24).

Therefore, as a result of the drive to deliver coordinated services of high value to people, healthcare professionals are incredibly reliant on one another, making healthcare organisations distinct from any other types of service providers. Consequently, the diversity, nature, and quality of

healthcare service delivery have also presented a particular challenge for healthcare workers and allied health professionals that are tasked with delivering high-quality and adequate medical care to a wide range of patients regardless of their particular medical requirements, preferences, and scheduling. Furthermore, a variety of academic works have shown that what might be regarded as high-quality healthcare services vary amongst providers, patients, or clients, locations, times, and day-to-day needs. Equally, in providing quality of healthcare services to health service consumers, different experts, including doctors, health information managers, nurses, and pharmacists, among others, always followed a variety of requirements and policies of the government and health regulatory bodies.

A lot of literature, including Abdulsalam and Khan (2020) and Isaruk et al. (2021), has indicated that the term quality healthcare services is somewhat difficult to describe and establish, and healthcare professionals provide services differently as a result of varying factors such as experience, individual abilities, availability of tools or equipment, relevant resources, and personalities. More so, governments at different levels in the world, and particularly in Nigeria, have invested in the health sector so that health service consumers can get satisfaction from seamless, quality healthcare services, including a reduction in mortality rates and frequent medical tourism. On the other hand, regardless of all the efforts that are being made by the government at all levels of care to ensure quality and standard healthcare service delivery to meet health service consumers' satisfaction, health service consumers are still continuously experiencing great challenges in receiving satisfactory quality healthcare services from many nations healthcare settings across the world (Charles & Viswanadham, 2022; Isaruk et al., 2021). More so, healthcare services are produced and consumed at the same time and cannot be stored for later consumption, and this often creates difficulty in determining the quality mechanism because health service consumers cannot judge 'quality' prior to purchase or at the time of consumption but can only judge from experiences gotten from usage of the healthcare services.

Although numerous researchers, such as Garge et al. (2018), Nyarko and Kahwa (2020), Ogoina et al. (2015), and Tomas et al. (2019), have used a variety of indicators at various times and places to examine the factors preventing patients from receiving acceptable quality healthcare, no study that specifically looks at the impact of attitude and ethical behaviour on health service consumers, particularly in a primary health centre (Mgbuoshimini), is known among the researchers.

For that reason, using the Mgbuoshimini Healthcare Centre in Obio/Akpor Local Government Area, Rivers State, Nigeria, is necessary in order to assess the degree or level to which health service customers are satisfied with the services they have gotten and to add to the body of knowledge in terms of concepts, empirical evidence, and theories derived from the study. In a nutshell, this study explored the attitudes and ethical behaviour of health care providers towards healthcare service consumers in Primary Health Centre Mgbuoshimini, Rumueme, in Obio/Akpor Local Government Area, Rivers State, Nigeria.

The objectives of the study are to

1. Explore the attitudes of healthcare providers towards health service consumers in the Primary Health Center Mgbuoshimini in Rumueme, Port Harcourt.
2. Assess the ethical behaviors of healthcare providers towards health service consumers in the Primary Health Center Mgbuoshimini in Rumueme, Port Harcourt,
3. Assess the impacts of the attitude and ethical behavior of healthcare providers towards health service consumers in the Primary Health Center Mgbuoshimini in Rumueme, Port Harcourt.

Research Questions

Three research questions were formulated to guide this study, and they are:

1. What types of attitudes do healthcare providers always show towards health service consumers in the Primary Health Centre Mgbuoshimini in Rumueme, Port Harcourt?

2. What ethical behaviours do healthcare providers always exhibit towards health service consumers in the Primary Health Centre Mgbuoshimini in Rumueme, Port Harcourt?
3. What are the impacts of the attitude and ethical behaviour of healthcare providers towards health service consumers in the Primary Health Centre Mgbuoshimini in Rumueme, Port Harcourt?

II. LITERATURE REVIEW

In providing healthcare, given the diversity of consumer groups, healthcare providers must take into account their histories and experiences (Vuong et al., 2018) including building a rapport with patients to easing their anxiety and stress, for these procedures will helps compassionate healthcare providers deliver effective treatment at the right time and manner. Healthcare providers' inclusion and representation can reduce patient anxiety, boost compliance, and enhance results.

In addition, healthcare providers must commit to advancing diversity and representation in healthcare through a proactive mindset and constant adherence to ethical conduct. A good number of research in recent time on patients in the health care industry offers fresh perspectives on patient behaviours and the importance of positive messaging, communication, feedback, and following advice. Some studies have revealed that consumers of healthcare services are also choosing the type of facility they want to attend based on how they perceive safety procedures.

Similarly, study has established that healthcare providers' attitude and ethical behaviour are important in luring patients to adhere to medical or therapeutic advice (McColl-Kennedy et al., 2017).

Bohner and Dickel (2011) claim that an attitude is an assessment of thought objects, and that thought objects can be anything that a person has in mind, from the commonplace to the abstract, including things, people, groups, and ideas.

Equally, Harrell (2005) posits that a person's attitude is their most valuable possession and a potent instrument for taking positive action because it permeates everything they say and do.

In order to change one's attitude into action, one must take ownership of what occurs in one's head by paying attention to their internal conversation.

Bohner and Dickel (2011) further opine that attitude is anything that a person genuinely possesses and later realises. For instance, a couple's decision to use family planning methods, which affect fertility status and population rate, is heavily influenced by attitudes and actions.

Generally, without bias, violence, or repression, everyone has the freedom to choose when and how many children to have, and therefore, to promote the use of a successful strategy in getting satisfactory healthcare services, it is crucial to assess current attitudes and their determinants (Sensoy et al., 2018).

According to some literature, the term attitude refers to a person's feelings or tendencies towards a concept, a physical item, or a symbolic representation, and it also shows that a successful life is built on a good attitude. Hence, individuals need to develop an attitude that helps them live life to the fullest, as they were designed to do, by first understanding that the heart is the control centre for their attitude. Harrell (2005) averred that your attitude is nothing more than an external representation of your inner self, and in order to alter your attitude, you must also change your heart. For example, the human brain is the most powerful computer in existence, and as a result, our programming is influenced by what we hear, see, and say. Generally, in healthcare settings, nurses may have either a positive or negative attitude about caring for patients who also have co-occurring mental diseases (van der Kluit & Goossens, 2011). Attitude has cognitive, affective, and behavioural components, and it can also be defined as the health workforce's tendency towards or against a specific phenomenon, person, or thing. Studies have shown that among general nurses who work in non-psychiatric settings, some oftentimes exhibit common

negative attitudes towards caring for patients with comorbid mental illness, including the belief that such patients are scary and behave erratically. The negative attitudes may have consequences for both the nurse and the patient.

McGaw et al. (2012) posit that every healthcare provider, and in particular, nurses, have an ethical obligation to conduct themselves professionally and in line with public expectations. Thus, standards governing the nursing profession are managed by a national regulatory body that oversees the actions of all registered individuals.

Consequently, providing high-quality healthcare services that satisfy patients' needs requires competent, motivated staff as well as an environment that encourages and addresses staff members' ethical behaviour. The ethical principles that direct a person's behaviour or the conduct of a profession are referred to as ethics, and the application of moral concepts, standards of conduct, and ideals surrounding good behaviour in the workplace is known as ethical behaviour, according to Mahan (2019). More so, it is critical to comprehend what ethics are in the workplace, why they are significant, and what firms may change to promote ethical behaviour. To make judgements that are courteous, egalitarian, and productive in the healthcare industry, a strong ethical code is necessary. Diverse healthcare professionals can connect with patients and their families, make care decisions, and foster a caring environment by following ethical guidelines, and the leaders must recognise the value of making moral decisions. According to Kirilmaz et al. (2015), healthcare ethics is a set of rules that serve as a guide for healthcare providers when providing patients with healthcare services.

Kirilmaz et al. further posit that healthcare ethics consists of four components that include autonomy, beneficence, non-maleficence, and justice. Autonomy involves respecting a patient's right to make decisions; beneficence involves making choices for the patient's good; and non-maleficence involves doing no harm.

Non-maleficence is the principle that healthcare providers should weigh the benefits against the burdens of all interventions and treatments, eschew those that are inappropriately burdensome, and choose the best course of action for the patient. While justice is the fair, equitable, and appropriate distribution of healthcare resources determined by justified norms, Public relations disasters, operational hiccups, financial obligations, and even organisational collapse can result from negative ethical activity, and in order to safeguard their interests, organisational stakeholders need to establish a connection with a corporate organisation. Although the relationship may become strained and unethical activity may harm the organisation's reputation, But, beyond reputational harm, ethical conduct at work has advantages such as improved employee performance, job happiness, dedication, and corporate citizenship behaviours. It also helps in reducing burnout and moral injury by assisting providers in aligning their decisions and actions with those of the organisation, and vice versa. In addition, good ethical behaviour enables healthcare providers to feel confident that their colleagues share the same ethical framework.

Preventing unethical behaviour, ensuring that everyone is operating within the same regulatory framework, improving patient outcomes and quality of care, and thereby helping to mitigate risk are just a few advantages of ethical behaviour in the healthcare workforce (Varkey, 2021).

McColl-Kennedy et al. (2017) found that the role of the health service customer is changing, leading to a shift from the healthcare professional setting the agenda to the customer actively contributing and co-creating value with service providers.

More so, the government of Tanzania launched a primary healthcare service development programme in 2007 to engage the health sector in poverty reduction strategies. In another development, case study design research by Charles and Viswanadham (2022) of Kamanga Medics Hospital in Mwanza found that diverse factors pose challenges in delivering healthcare services, while factors that pull healthcare service delivery include social media, infrastructure, and NHIF services. Similarly, Njong and Tchouapi (2020) assessed user satisfaction with healthcare services in Cameroon using the 2010 QSDS, and

results showed that 85% of users were satisfied, but age, educational status, and waiting time were prominent covariates. The study concluded that despite government efforts in ensuring quality healthcare service provision, bad governance and corruption remain issues. Equally, Garge et al.'s (2018) study on consumer health care: current trends in consumer health monitoring revealed that the term healthcare has a very wide scope that ranges from lifestyle and wellness right up to care for patients with acute conditions, and that with the availability of digital accessories for monitoring basic biological functions, the potential for obtaining detailed data on the lifestyle, habits, and behaviour of an individual exists. The study also showed that such data would enable the diagnosis of the causes of a condition with higher accuracy, provide feedback to an individual for compliance with "healthy guidelines," and contribute information to the healthcare provider for use in diagnosis in the event of an ailment. Another study by Vuong et al. (2018) found that healthcare consumers' sensitivity to costs hinges on their health status and certainty of future events, and that uninsured, married, and employed individuals are less sensitive to costs.

A single-centre, cross-sectional, descriptive study by McGaw et al. (2012) on healthcare workers' attitudes and compliance with infection control practises in the operating department of a Jamaican teaching hospital found that compliance with infection control practises was low, and only 17% of participants were compliant. The study revealed that healthcare workers were selective in what practises they adhered to, with high rates of compliance for hand-washing, gloves, gowns, and facemasks. The study concluded that nurses had higher favourable attitudes and compliance rates than physicians. Another cross-sectional study undertaken in 2011/2012 among healthcare workers in two tertiary hospitals in Nigeria by Ogoina et al. (2015) found that healthcare workers in Nigeria had poor knowledge of injection safety and inadequate resources to practise standard precautions, leading to poor compliance with standard precautions for infection control. The study recommended that management implement policies that foster training, including the provision of resources. A quantitative, non-experimental, explorative, and descriptive design study by Tomas et al. (2019) on factors associated with nurses' negative behaviour at a public health facility in Namibia found that caring behaviour is essential for healthcare organisations and their employees. The study also showed a strong association between nurses' negative behaviour and management's reluctance, patients' behaviour, and cultural practises. In the same way Nyarko and Kahwa (2020) examined the attitude of health workers (nurses) concerning patients and the perception patients have about them, a case study at Kropa Health Centre in Ghana using a mixed methods approach found that hospitals can improve customer satisfaction and loyalty through efficient public relations, frequent in-service training, and bad public relations with patients and their families.

According to Paul Ricoeur in Dorey (2016), little ethics provides an ethical framework to harmonise self-esteem and solicitude amongst patients and healthcare providers through proper health information management, but Dorey (2016) argues that health information management can lead to inequalities despite the fact that scholars have developed a matrix to overcome conflicts between privacy interests and the common good in the management of health information. Consequently, Deshpande et al.'s (2006) survey study revealed that peer influence had the greatest impact on ethical behaviour.

González-de Paz et al. (2014) found that 452 professionals from 56 PHC centres supported a set of ethical standards, with nurses performing more ethically than family doctors and professionals who reported having effective knowledge of ethical norms performing more ethically overall. The study concluded that paternalistic behaviour persists in PHC and that ethical sensitivity could improve if patients were cared for by multidisciplinary teams. Another study by Kirilmaz et al. (2015) revealed that ethical behaviour is characterised by honesty, fairness, and equity in interpersonal, professional, and academic relationships, as well as in research and scholarly activities. The study also showed

that respecting the dignity, diversity, and rights of individuals and groups of people has been an important part of healthcare service provision and that ethical dilemmas arise when there is conflict between the patient's values and the physicians' and nurses' values and obligations. Farkhani et al. (2017) determined the challenges of premarital education programmes in Iran using qualitative research and in-depth, semi-structured interviews and found that ethical behaviour is a fundamental feature of professional nursing and is essential for nurse job responsibility. The study also revealed that ethics is deeply ingrained in the nursing profession and that it is not enough to develop a code of ethics. In addition, Kirilmaz et al. (2015) examined the ethical sensitivity of healthcare professionals, and the study showed a positive correlation between sub-dimensions of the Ethical Sensitivity Questionnaire and no significant difference in ethical behaviour according to sex, marital status, or education. The study recommended making ethics committees functional, revising ethics education, and giving practical in-service training to reduce ethical dilemmas.

III. RESEARCH METHODOLOGY

In order to actualize the objectives of the research, a cross-sectional descriptive study was used to examine the attitude and ethical behaviour of healthcare providers towards healthcare service consumers in a primary health centre in Mgbuoshimini, Rumueme, Obio/Akpor Local Government Area, Rivers State, Nigeria. The population of the study comprised one hundred (100) participants, ranging from pregnant women, nursing mothers, couples for family planning, and sick patients who have been using the facility from March 1 to April 19, 2023. The detailed population includes 50 pregnant women, 30 nursing mothers, five couples from the family planning unit, and 15 sick patients. A sample size of 80 was determined using Taro Yamane's formula [i.e., n = N/(1 + N(e)2)], and a simple random sampling technique was also adopted to select the respondents for the study. The primary instrument for data collection was a self-structured questionnaire that was divided into sections A and B. Section A consisted of personal data, and Section B consisted of questions related to the research study. The questionnaire used was carefully framed and examined to fit into the context of the work, and after drafting, it was given to other scholars in related fields for scrutiny and vetting. After seeing its worth in both validity and reliability through the test-retest method, 20 copies of the constructed questionnaire were administered to concerned patients within the clinic. In addition, the process was repeated after a few hours, and the results showed consistency, meaning that the instrument was reliable. Researchers personally administered and retrieved the instrument from the respondents over the course of four working days, and the collected data were presented and analysed using descriptive statistical methods such as frequency distribution tables and percentages for easy understanding and interpretation. More so, ethical principles were strictly adhered to, and there was no conflict of interest.

IV. DATA PRESENTATION AND ANALYSIS

Eighty (80) copies of questionnaires were distributed to health service consumers (patients) in the Primary Health Centre, Mgbuoshimini, Rumueme in Obio/Akpor Local Government Area, Rivers State, and eighty (80) copies were retrieved, making a 100% return rate. The analysis was done, and they are presented in the form of frequency distribution tables to give better explanations.

V. DATA PRESENTATION

Table 1: Sex Distribution of the Respondents

Sex	Frequency	Percentage (%)
Male	30	46
Female	50	54
Total	80	100

Source: Field Survey, 2023

VI. DATA PRESENTATION AND ANALYSIS

Table 1 shows the sex of the respondents: 30 (46%) of the respondents were males, while 50 (54%) were females. This finding gives the impression that the majority of the health service consumers (respondents) receiving care in the health facility are females, and they stand a better chance to air out their satisfaction level from the attitude and ethical behaviour of healthcare providers that would or have been stilling assurance and confidence in their retention or visit to other facilities for healthcare needs.

Table 2: Age Distribution of the Respondents

Age	Frequency	Percentage
18-28	8	10
29-39	20	25
40-50	40	50
51 and above	12	15
Total	80	100

Source: Field Survey, 2023

Table 2 shows the age distribution of the respondents: 8 (10%) of the respondents fell within the age range of 18–28; 20 (25% of the respondents) were within the age bracket of 29–39; 40 (50%) of the respondents fell within the age range of 40–50; and 12 (15%) of the respondents were in the age bracket of 51 and above. This result implies that the majority of the respondents fell within the age range of 40–50 years, and within this age range were mature mothers who had experiences over the years both in childbirth, immunisation, family planning programmes, and other healthcare needs and are more likely to be the proper people that can really determine their satisfaction level of care received over the years to compare with the one received in the primary healthcare of the study.

Table 3: Educational Qualification of Respondents

Educational Qualification	Frequency	Percentage (%)
WAEC/GCE/NECO	-	-
ND/Technician	20	25
HND/B.sc/B.edu/B.Tech	52	65
PGD/Masters	8	10
Total	80	100

Source: Field Survey, 2023

Table 3 shows the educational levels of the respondents: 20 (25%) respondents have ND or technical qualifications; 52 (65%) respondents are HND, B.Sc., B.edu., or B.Tech. holders; and 8 (10%) of them are PGD or master's degree holders. This finding gives the impression that the majority of the respondents are HND/B.Sc/B.Edu /B.Tech holders and would be capable of airing out how satisfied they are with the quality of healthcare service provision in the healthcare facility.

Research Question 1: What are the attitudes of health care providers towards health service consumers in Mgbuoshimini Primary Health Centre, Rumueme, Port Harcourt, Rivers State?

Table 4: Showing Respondents' Responses to the Attitudes of Healthcare Providers Towards Health Service Consumers With Options of the Likert 4 Rating Scale of Strongly Agree (Sa), Agree (A), Disagree (D), and Strongly Disagree (Sd), Respectively

S/N	Items	Response Mode			
		SA	A	SD	D
1	There is gender discrimination among healthcare providers	45(56%)	15(19%)	8(10%)	12(15%)
2	Healthcare providers lack a right based approach when dealing with patients	40(50%)	20(25%)	12(15%)	8(10%)
3	Healthcare providers exhibit a nonchalant attitude when dealing with healthcare consumer	50(62%)	20(25%)	4(5%)	6(8%)
4	Greater attention is given to Social class citizens	55(68%)	15(19%)	7(9%)	3(4%)

Source: Field Survey, 2023

Table 4 shows the attitudes of healthcare providers towards health service consumers: 45 (56%) of the respondents strongly agreed that there is gender discrimination among healthcare providers; 15 (19%) of the respondents also agreed, while 8 (10%) and 12 (15%) of the respondents strongly disagreed and disagreed, respectively; 40 (50%) of the respondents strongly agreed that healthcare providers lack a right-based approach when dealing with patients; 20 (25% of the respondents also agreed), while 12 (15%) and 8 (10%) of the respondents strongly disagreed and disagreed, respectively; Furthermore, 50 (62%) of the respondents strongly agreed that healthcare providers exhibit a nonchalant attitude when dealing with health service consumers; 20 (25% of the respondents) also agreed, whereas 4 (5%) and 6 (8%) strongly disagreed and disagreed with the statement, respectively. 55 (68%) of the respondents strongly agreed that greater attention is given to social class citizens; 15 (19%) of the respondents also agreed, whereas 7 (9%) and 3 (4%) of the respondents strongly disagreed and disagreed, respectively. The grand total response value was 100% at 320, and strongly agree was 190 (59.375%), agree was 70 (21.875%), disagree was 31 (9.6875%), and strongly disagree was 29 (9.0625%). The outcome of the strong agreement response of 190 (59.4%) revealed that the healthcare providers had a negative attitude towards healthcare service consumers at the primary healthcare centre. This outcome implies that there is poor quality and dissatisfaction with the healthcare services delivered in the facility.

Research Question 2: What are the ethical behaviors of healthcare providers towards healthcare service consumers in Mgbuoshimini Primary Health Centre, Rumueme, Port Harcourt, and Rivers State?

Table 5: Showing respondents' responses on the ethical behavior of healthcare providers towards health service consumers with 4 options on the Likert rating scale of strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD), respectively.

S/N	Items	Response Mode			
		SA	A	SD	D
1	Health service consumers' health information are not strictly handled	25(31%)	30(38%)	15(18%)	10(13%)
2	Harassment of a patient do occur	45(56%)	35(44%)	-	-
3	Indulging in fraudulent act by collecting money when immunization is free	50(63%)	30(37%)	-	-
4	Abandonment and neglect of a patient that needs urgent attention	45(56%)	35(44%)	-	-
5	Preferential treatment by service providers	25(31%)	30(38%)	15(18%)	10(13%)

Source: Field Survey, 2023

Table 5 shows the ethical behaviours of healthcare providers towards health service consumers: 25 (31% of the respondents in Item 1) strongly agreed that health service consumers' health information was being exposed; 30 (38% of the respondents also agreed to the statement); 15 (18%) strongly disagreed with the statement; and 10 (13%) of the respondents also disagreed; 45 (56%) of the respondents strongly agreed that harassment of a patient was unethical; 35 (44%) of the respondents also agreed to the statement; and none of the respondents strongly disagreed or disagreed with the statement. 50 (63%) of the respondents strongly agreed that indulging in fraudulent acts by collecting money when immunisation is free is unethical, while 30 (37%) of the respondents also agreed, and none of the respondents strongly disagreed or disagreed with the statement. 45 (56%) of the respondents strongly agreed that abandonment and neglect of a patient that needs urgent attention is unethical; 35 (44%) of the respondents also agreed, while none of the respondents strongly disagreed or disagreed, respectively. 25 (31%) of the respondents strongly agreed that preferential treatment by service providers is unethical; 30 (38%) of the respondents also agreed; and 15 (18%) and 10 (13%) of the respondents strongly disagreed and disagreed, respectively. The grand total response value was 400 (100%), strongly agreed 190 (47.5%), agreed 160 (40%), disagreed 30 (7.5%), and strongly disagreed 20 (5%). This finding indicates that strongly agreed 190 (47.5%) and agreed 160 (40%) response values signify that healthcare providers do not execute good ethical behaviour towards health service consumers in the facility. This act could be a factor in the poor quality and lack of satisfaction with healthcare service provision in the facility.

Research Question 3: What is the impact of the attitude and ethical behavior of health care providers towards health service consumers in primary health centers in Mgbuoshimini, Rumueme, Port Harcourt, and Rivers State?

Table 6: Showing respondents responses on the impact of the attitude and ethical behavior of health care providers towards health service consumers in the Primary Health Centre Mgbuoshimini, with 4 options on the Likert rating scale of strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD), respectively

S/N	Item Options	Response Mode			
		SA	A	SD	D
1	There will low level of health resource consumption	40(50%)	30(38%)	5(6%)	5(6%)
2	It can lead to low patronage image promotion	50(63%)	20(25%)	5(6%)	5(6%)
3	It can lead to patients' loss of confidence in the service provider	50(63%)	30(37%)	-	-
4	There will be no referral of any kind by the health service consumers	60(75%)	10(13%)	7(8%)	3(4%)
5	Staff strength will be reduced as a result of low patronage	60(75%)	10(13%)	-	-

Source: Field Survey, 2023

Table 6 depicts the impact of the attitude and ethical behaviour of health care providers towards health service consumers; item 1 shows that 40(50%) of the respondents strongly agreed that there will be low level of health resource consumption, 30(38%) also agreed to the statement, while 5(6%) and 5(6%) of the respondents strongly disagreed and disagreed respectively; item 2 also indicates that 50(63%) of the respondents strongly agreed that it can lead to low patronage image promotion, whereas 5(6%) and 5(6%) of the respondents strongly disagreed and disagreed respectively; item 3 shows that 50(63%) strongly agreed that it can lead to patients' loss of confidence in the service provider, 30(37%) of the respondents also agreed, meanwhile none of the respondents strongly disagreed and disagreed respectively; item 4 also shows that 60(75%) of the respondents strongly agreed that there will be no referral of any kind by the health service consumers, 10(13%) of the respondents also agreed and 7(8%), 3(4%) of the

respondents strongly disagreed and disagreed to the statement respectively, lastly, item 5 shows that 60(75%) of the respondents strongly agreed that staff strength will be reduced as a result of low patronage, 10(13%) of the respondents also agreed, whereas none of the respondents strongly disagreed and disagreed respectively. The grand total response value of 390 (100%) indicated strongly agreed 260 (66.7%), agreed 100 (25.6%), disagreed 17 (4.4%), and strongly disagreed 13 (3.3%). This overall result of 66.7% of strongly agreed and 25.6% agreed connotes that the attitudes and ethical behaviours of healthcare providers towards health service consumers in the primary healthcare facility were poor. Hence, a low level of health service consumers' satisfaction was associated with the institution.

VI. DISCUSSION OF FINDINGS

Findings on demographic data regarding gender, age, and educational levels of the respondents showed that 30 (46%) of the respondents were males and 50 (54%) were females; the highest percentage of respondents fell within the age range of 40–50 years; and 52 (65%) of respondents had HNDs, B.Sc., B.Ed., or B.Tech., respectively. These results give the impression that the majority of the health service consumers (respondents) receiving care in the health facility are female, are within childbearing ages, and have degrees from different higher educational institutions. In addition, findings also showed that the majority of respondents are mostly mothers, who are always in need of healthcare for themselves, their children, and their families to ensure the healthiness and economic growth of the family, and who also have experience and knowledge of what quality healthcare is from their individual perspectives of satisfaction level.

Therefore, these categories of respondents stand a better chance to air out their satisfaction level from the attitude and ethical behaviour of healthcare providers that would or would not stilling assurance and confidence in them for their frequent retention or visit to other facilities for healthcare needs. This study finding supports Kirilmaz et al.'s (2015) study results, which showed a positive correlation between sub-dimensions of the Ethical Sensitivity Questionnaire and no significant difference in ethical behaviour according to sex, marital status, or education.

Attitude: The study findings revealed that greater attention is given to social class citizens (55%), healthcare providers nonchalant attitude when attending health service consumers (50%), gender discrimination among healthcare providers (45%), and the lack of a good approach to healthcare consumers' satisfaction levels (56%).

The grand total response values were 320 (100%), strongly agreed 190 (59.375%), agreed 70 (21.875%), disagreed 31 (9.6875%), and strongly disagreed 29 (9.0625%), respectively. The outcome of the strong agreement response of 190 (59.4%) revealed that the healthcare providers had a negative attitude towards healthcare service consumers at the primary healthcare centre. The study outcome implies that there is poor quality and dissatisfaction with the healthcare services delivered in the facility. The study findings affirmed the outcomes of McGaw et al. (2012), a single-centre cross-section descriptive study that found that healthcare workers were selective in what practises they adhered to, and nurses had higher favourable attitudes and compliance rates than physicians. Similarly, a cross-sectional study by Ogoina et al. (2015) found that healthcare workers in Nigeria had poor knowledge of injection safety and inadequate resources to practise standard precautions, leading to poor compliance with standard precautions for infection control. Conversely, a quantitative, non-experimental, explorative, and descriptive design study by Tomas et al. (2019) showed a strong association between nurses' negative behaviour and management's reluctance, patients' behaviour, and cultural practises, and that caring behaviour is essential for health care organisations and their employees. The study findings also aligned with Nyarko and Kahwa's (2020) study on the attitude of health workers (nurses) towards patients and the perception patients have of them, which found that hospitals can improve customer satisfaction and loyalty through efficient public relations.

Ethical Behavior: Findings revealed that indulging in fraudulent acts by collecting money when immunization is free (50/63%), abandonment and neglect of a patient that needs urgent attention (45/56%), lack of use of polite words on patients (45/56%), non-strict handling of healthcare service consumers' medical information (38%) and preferential treatment by healthcare service providers (inequity) (30/385) strongly agree and agree concurrently. The grand total response value was 400 (100%), strongly agreed 190 (47.5%), agreed160 (40%), disagreed 30 (7.5%), and strongly disagreed 20 (5%). The study finding indicates that strongly agreed 190 (47.5%) and agreed 160 (40%) response values signified that healthcare providers do not execute good ethical behavior towards health service consumers in the facility. The study established evidence of poor quality of healthcare delivery that makes health service consumers always derive non-satisfaction. The study findings are somewhat in line with González-de Paz, et al. (2014), who found that 452 professionals from 56 PHC centers supported a set of ethical standards, with nurses performing more ethically than family doctors and other professionals that create poor service delivery and non-satisfaction by healthcare consumers. Similarly, Farkhani et al. (2017) found that ethical behavior is a fundamental feature of professional nursing and that ethics is deeply ingrained in the nursing profession. The study results also indicated that when diverse healthcare professionals do not adhere to ethical behavior, it often results in poor satisfaction among health service consumers. The study findings support Deshpande et al. (2006) study that found that peer influence had the greatest impact on ethical behavior, and also Kirilmaz et al.'s (2015) study which revealed that ethical behavior is characterized by honesty, fairness, and equity in interpersonal, professional, and academic relationships, as well as in research and scholarly activities. The study results also align with Dorey (2016) who argues that health information management can lead to inequalities, but Paul Ricoeur's "little ethics" provides an ethical framework to harmonise self-esteem and solicitude amongst patients and healthcare providers.

V. CONCLUSION

This study found that healthcare providers have a negative attitude and lack good ethical behaviour towards health service consumers at Primary Health Centre Mgbuoshimini and Rumueme in Obio/Akpor Local Government Area, Rivers State. As a result, we conclude that positive attitude and ethical behaviour of the healthcare workforce are antidotes for quality healthcare service delivery that can meet the needs of health service consumers all the time, and that unethical behaviour towards them can always lead to conflicts, low levels of health resource consumption, low patronage image promotion, patients' loss of confidence in the service provider, no referrals of any kind, and reduced staff strength.

VI. RECOMMENDATIONS

The results make it abundantly evident that workers with unfavourable attitudes and unethical behaviour can always obstruct the delivery of high-quality healthcare services as well as systemic harmony and trust-building, and in order to guarantee a good or positive attitude and a favourable ethical behaviour of employers towards health service customers at all times, the government should put measures in place such as re-training, motivation, and an enabling work environment. In addition, each healthcare professional needs to develop soft skills that will help them become more ethical and positive in their interactions with patients, staff, and facilities, as well as provide better quality care in general. Lastly, in order to secure a healthy and prosperous society as a whole, all stakeholders must put their hands on the table to ensure necessary measures for smooth healthcare service delivery at every level of healthcare systems worldwide.

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ABSTRACT

The purpose of this study was to examine the relationship between coping and psychological distress. It also aimed at determining whether Afrocentric worldview would moderate the relationship between coping and psychological distress. The study was cross sectional using mixed method approach, and 50 cancer patients were conveniently and purposively sampled for the study. The quantitative data was collected through questionnaire such as Hospital Anxiety and Depression Scale (HADS), Afrocentric Coping System Inventory and Africentric Worldview Scale. The semi-structured interview guide was used to collect qualitative data from the respondents. The results showed that the mean weighting of patients' anxiety and depression was 4.08 and 5.42 respectively.

Keywords: africentric worldview, anxiety, depressions, cancer, coping.

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Coping and Psychological Distress among Cancer Patients: The Ghanaian Perspective

Eliza Oduraa Ampofo[α], Isaac Nyarko Kwakye[σ], and Elizabeth Oduraa Ampofo[ρ] & Julius Kwaku Adu-Ntim[Ↄ]

ABSTRACT

The purpose of this study was to examine the relationship between coping and psychological distress. It also aimed at determining whether Afrocentric worldview would moderate the relationship between coping and psychological distress. The study was cross sectional using mixed method approach, and 50 cancer patients were conveniently and purposively sampled for the study. The quantitative data was collected through questionnaire such as Hospital Anxiety and Depression Scale (HADS), Afrocentric Coping System Inventory and Africentric Worldview Scale. The semi-structured interview guide was used to collect qualitative data from the respondents. The results showed that the mean weighting of patients' anxiety and depression was 4.08 and 5.42 respectively. Coping correlated with psychological distress [r = -0.297, p = 0.018], and no significant relationship was found between Africentric worldview and psychological distress [r = -0.138, p = 0.17]. Africentric worldview did not moderate the relationship between coping and psychological distress [β = 2.25, t = 1.46, p = 0.088]. The content analysis approach was used to analyze the qualitative data and five themes were generated: knowledge of cancer, psychological effect, physiological effect, social support and means of coping. Additional findings, implications for clinical practice and further studies are discussed. The study highlighted the common mental health problems among cancer patients in Ghana and has provided the basis for incorporating psychological care into treatment. Therefore, it is recommended that the treatment of cancer should adopt the biopsychosocial approach in order to provide comprehensive care to the patients.

Keywords: africentric worldview, anxiety, depressions, cancer, coping.

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I. INTRODUCTION

Cancer and related complications are reported to be the leading cause of death worldwide and it poses a lot of burden on the community (Fitzmaurice at al., 2017). It is estimated that the world recorded 18.1 million new cases and 9.6 million cancer-related deaths in 2018 (Bray et al., 2018). Out of these figures, 58% and 7.3% of the new cases and cancer-related deaths respectively were recorded in Africa (Bray et al., 2018). In Ghana, Global Cancer Observatory reported (GLOBOCAN) 24009 new cancer cases and the number of deaths was estimated at 15802 (World Health Organisation [WHO], 2020). Prostate and lung cancers are most frequent cancers in males, whereas breast and cervical cancers are highly reported cancers in females in Ghana (Bruni et al., 2019; WHO, 2020). It is anticipated that demographic factors would increase the number of new cases (per year) in Africa by 70% in 2030 (Adadey et al., 2020). Other factors contributing to the global burden of cancers include population growth, aging population, prevalence and other risk factors associated with socio-economic development (Bray et al., 2018). Smoking, overweight, physical inactivity, changing reproductive patterns, viral infections and uncontrolled genetic factors have also been found to

be associated risk factors of cancer (Boyle and Ferlay, 2005; Torre et al., 2015).

The diagnosis and treatment of cancer is often accompanied with high levels of psychological distress (Mehnert et al., 2018; Peters et al., 2020).

Taghizadeh et al. (2018) explained psychological distress as a type of mental stress that is experienced by people because of different causes and situations. The National Comprehensive Cancer Network also defined cancer-related distress as a multi-determined unpleasant emotional experience of a psychological, social, and/or spiritual nature that may restrict a person's ability to cope successfully with cancer, its physical symptoms, and its treatment (Peters et al., 2020). The distress experienced by cancer patients is associated with prolong hospitalization, reduced quality of life, poor treatment adherence, higher mortality and suicidal ideation (Giedre & Kamile, 2019; Kendall et al., 2011; Kim et al, 2017; Ng et al., 2017; Subramaniam et al., 2018). According to Viegas and Henriques (2020), being diagnosed of cancer is a traumatizing experience for patients and could reduce their responsiveness to treatment.

Studies have established that about 30% of patients experience psychological distress and other related mental health conditions (Viegas & Henriques, 2020; Singer et al., 2013; Vehling et al., 2012). The experience of psychological distress is unavoidable since diagnosis of cancer could threaten a patient's sense of security, and this is often due to perceived fear, pain, suffering and eventual death (Viegas & Henriques, 2020). The common psychological distress experienced include anxiety, depression, adjustment disorder, and fatigue (Janaki et al., 2010; Mehnert et al., 2018; Mitchell et al., 2011; Peters et al., 2020; Viegas & Henriques, 2020). Gonzalez et al. (2022) noted that depression and anxiety are common symptoms among patients diagnosed with cancer (Almigbal et al., 2019). Several studies have reported high levels of distress among cancer patients. For example, Carlson et al. (2019) found out that 46.2% of cancer patients in USA were significantly distressed. Similarly, Mehnert et al. (2018) reported that 52% of in and outpatient cancer patients in Germany showed high levels of distress. Peters et al. (2020) assessed the psychological distress of inpatient cancer patients and found out that 65.9% of the sample experienced high levels of distress. Others also reported that anxiety and depression were significant and prevalent problems that affected patient's quality of life (Almigbal et al., 2019). The psychological distress experienced by patients with advance cancer have a significant negative impact on their quality of life (Gonzalez et al., 2022). Gonzalez et al. investigated the prevalence of fatigue, emotional distress and uncertainty among patients with advance cancer and found out that 55.7% reported fatigue and 47.7% reported high levels of emotional distress. A systematic review of psychological distress among cancer patients in Southeast Asia revealed that the prevalence of anxiety ranged between 7% and 88% while depression was between 3% and 65.5%. Therefore, addressing the issue of psychological distress in cancer patients will help improve their overall quality of life (Ostovar et al., 2022).

Patients adopt several coping strategies to accommodate the distress experienced, and these include problem-focused and emotion-focused strategies. Problem-focused strategies utilize planning and seeking instrumental support while emotion-focused approach adopts acceptance or seeking interventions to deal with the distress associated with the condition. These coping strategies are associated with positive outcomes in patients such as reduced psychological distress, better growth, improved well-being and better quality of life (Al-Azri et al., 2009; Low et al., 2006). A study by Kelly et al. (2012) reported that young adults with advance cancer used proactive, distancing, negative expression, support-seeking, respite-seeking, and acceptance-coping strategies.

However, the mostly used strategies were acceptance and support-seeking. Trevino et al. (2022) also found out that 51% of cancer patients studied had positive coping strategies, and these had expanded the need for health education on coping strategies.

The coping strategies adopted by patients could be influenced by the Africentric worldview which refers to the quality of thought and practice which is entrenched in the cultural image and interests of African peoples thus signifying and reflecting the life experiences, past and present customs of African peoples as the centre of analyses. Mbiti (1970) has argued that there are cultural values that are common throughout the continent of Africa and these values and principles underpin the African-centered worldview. Worldviews can vary amongst cultural groups and can help define how individuals feel, view, think, perceive, and experience life (Myers et al., 1996). According to Sue and Sue (2008), worldview is interconnected with one's cultural background so medical professionals should be aware of differences in cultural worldviews so as not to respond according to their personal values, assumptions, and perspectives. Belief in Africentric values is assumed to lead to a reduction in psychological symptoms such as stress, anxiety, depression, and anger, and may promote a greater sense of wellbeing, resilience and coping among Africans Americans (Thomas et al., 2003). According to Williams et al. (2012), Africans' ethnic identity serves as a buffer against distress, and enhances psychological well-being.

Despite the importance of psychological assessment of cancer patients, only few studies in Ghana have been conducted to explore patients' psychological distress. Psychological problems are often underrated and limited studies have addressed the issue of psychological distress and coping within the Ghanaian context. Therefore, this study seeks to examine the psychological distress experienced by cancer patients, their coping strategies and how the Africentric worldview moderates the relationship between coping and psychological distress. It was hypothesized that there would be no statistically significant relationship between psychological distress and coping mechanisms; there would be no significant relationship between psychological distress and Africentric Worldview; and Africentric worldview would not moderate the relationship between coping and psychological distress.

II. METHODS

2.1 Research design

A cross-sectional design adopting a mixed method approach was used in the current study because data was collected from different cancer patients during a particular period of time. The mixed research method uses both elements of quantitative and qualitative research approaches for the purpose of in-depth understanding and corroboration (Johnson et al., 2007). Quantitative methodology was used in order that what is known about coping, Africentric worldview and psychological distress would first be surveyed. The qualitative approach was used to explore and gain sufficient understanding on poorly understood variables. Thus, the qualitative data was collected to explain the specific coping strategies used by Ghanaian cancer patients.

2.2 Sample

Participants were recruited from 37 Military Hospital and Police Hospital in the Greater Accra Region of Ghana. As at the time of data collection, the population of patients from the two hospitals was 86; 24 patients had been recently diagnosed and did not meet the inclusion criteria; four patients were in their end stage. Using the Krejcie and Morgan (1970) sampling table in determining sample size, out of a total accessible population of 58 patients, a sample of 50 was obtained. In the qualitative study, six (6) patients who had already participated in the quantitative study and were willing to be part of the qualitative study were interviewed.

2.3 Recruitment

The purposive and convenience sampling methods were used to select the research participants. It is reasonable to use a non-probabilistic sampling technique to recruit participants for a study when the population is "scarce" and involves clinical samples or when the study area is sensitive like cancer. Inclusion criteria for to be used in the quantitative study included being diagnosed of cancer for a year or more, the patient aged 18 years and above, and had the ability to give an informed consent. Again

patients were excluded from the study if they showed any sign of psychiatric illness or if they were on any psychoactive medication. Patients with serious complications or in their end stage were also excluded from the study. To be selected for the qualitative study, participants should have first participated in the quantitative research. Participants must be able to express themselves in English or Twi and as well be willing to participate in the interview.

2.4 Demography of Participants

The demographic characteristics of participants are presented in Table 1. Majority of the cancer patients were females (78%) and 22% were males, and their ages range from 28 years to 77 years with most of them (40%) being in the age range of 48-57 years. The least age bracket was 28-37 years representing 6%. In terms of educational qualifications, 28% had no education, 4% attended school up to the primary level, 38%, 14% and 16% completed junior high school (JHS), senior high school (SHS) and tertiary, respectively. Seventy percent (70%) were married and 16% were divorced/separated. Majority (72%) received a monthly income of less than Gh₵ 400 while 12% received income above Gh₵1000. The two occupations mostly engaged in by participants were self-employment (38%) and government employees (12%), however, 40% of the patients were not employed. With the type of cancers, 46% were breast cancer patients, 34% were diagnosed with cervical cancer, while 20% were confirmed prostate cancer patients.

Table 1: Socio-demographic Characteristics of Participants (n= 50)

Variables	Subscale	Frequency	Percentage (%)
Gender	Male	11	22
	Female	39	78
Age	18-27	0	0
	28-37	3	6
	38-47	6	12
	48-57	20	40
	58-67	15	30
	68-77	6	12
Education	No education	14	28
	Primary	2	4
	JHS	19	38
	SHS	7	14
	Tertiary	8	16
Marital Status	Single	2	4
	Married	35	70
	Divorced /Separated	8	16
Monthly Income	Below Gh₵400	36	72
	Gh₵400-1000	8	16
	Above Gh₵1000	6	12
Religion	Christian	44	88
	Muslim	6	12
	Traditional	0	0
	Others	0	0
Occupation	Government	6	12
	Self-employed	19	38
	Student	1	2
	Private organization	4	8
	Unemployed	20	40
Type of Cancer	Breast	23	46
	Cervical	17	34
	Prostate	10	20

2.5 Instrumentation

Socio-demographic data such as age, gender, educational level, religion, marital status, income level, occupation and the type of cancer was measured using self -developed questionnaire.

Africentric coping system inventory (ACSI): The ACSI is a 30-item self-report measure of the unique coping behaviours employed by African Americans during stressful encounters with the environment (Utsey et al., 2000). The ACSI is grounded in an African-centered conceptual framework and consists of the following dimensions: Cognitive/Emotional Debriefing (CED; 11 items), Spiritual-Centered Coping (SC; 8 items), Collective Coping (CC; 8 items), and Ritual-Centered Coping (RC; 3 items). Utsey et al. (2000) reported Cronbach's alphas ranging from .71 to .80 for the four ACSI subscales. Evidence of the ACSI's concurrent validity was demonstrated through a correlation study with a second coping measure. In their investigation, Cronbach's alphas of .60, .81, .66, and .66 were calculated for the cognitive/emotional debriefing, spiritual-centered coping, collective coping, and ritual centered coping subscales, respectively. The analysis of the pre-tested questionnaire using SPSS version 20.0 indicated a good reliability of α = .70.

Hospital anxiety and depression scale (HADS): The hospital anxiety and depression (HADS) rating scale was developed by Zigmond and Snaaith (1983) and has been established as a much applied and convenient rating instrument for anxiety and depression in patients with both somatic and mental problems. It has been recommended that the internal consistency, as measured with chronbach's coefficient should be at least 0.60 for self-reported instrument to be reliable and at least 0.80 when used as a screening instrument (Nunnally & Bernstein, 1994). Studies have found chronbach's alpha to be 0.78 -0.93 (Mykletun et al., 2001). The pre-test results showed a good reliability of α =. 85.

Africentric worldview Scale: Belgrave (1997) developed the Africentric worldview scale to assess Africentric values of African Americans. Belgrave and Allison (2006) identified six subscale of Africentric worldview scale (ACWV): spirituality; collectivism; time orientation; orality; verve and rhythm; sensitivity to affect, balance and harmony with nature. Respondents answered each item on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." The Cronbach's reliability co-efficient for the scale was .63 (Belgrave 1997). The questionnaire was pre-tested and the co-efficient of alpha was α = .74 which indicates a good reliability.

A semi-structured interview guide was used for data collection during the qualitative phase of the study.

2.6 Data Collection Procedure

Data collection for the quantitative aspect was carried out by the principal investigator and a research assistant who had been trained to provide the needed assistance; however, the qualitative interviews were carried out sorely by the principal researcher. The research assistant, who is a degree holder, was trained on the purpose of the study and the process of administering the questionnaire to avoid bias. The questions were explained to the patients and further clarification was done as well. Participants were guided as to how to respond to the questionnaire without influence to the responses they provided. Participants who could read and write responded to the questionnaire themselves whereas those who could not read and write were assisted by the research assistant. After data collection, all questionnaires were stored in files and access restricted to the research team.

Questionnaires were given codes for archiving. The quantitative data was collected first on their coping, Africentric worldview and psychological distress and analyzed, after which the qualitative data collection followed to explain or confirm significant (or non-significant) results, outlier results or surprising results. During the qualitative data collection, potential participants were once again briefed on the qualitative aspect of the study. Consent was also sought from respondents to be interviewed and those who agreed were booked for the interview session.

Interviews were done in the homes of participants and lasted between 30-45 minutes. One interview

was done in a day since the researcher had to go to the homes of participants. The interviews were done in Twi and English and they were recorded.

2.7 Data Processing and Analysis

Data from the questionnaires was double-checked and cleaned before it was entered onto a computer using SPSS. The quantitative data was analyzed with SPSS version 20.0 and the descriptive statistics was used to analyse the socio-demographic data, specifically, frequency and percentage were calculated. The Pearson Product Moment Correlation Coefficient was used to test the relationship between coping and psychological distress, and the association between Africentric worldview and psychological distress among cancer patients in Ghana. Hierarchical Multiple Regression was used to test the moderation role of Africentric worldview in the relationship between coping and psychological distress. The qualitative aspect of the study was analyzed with content analysis. The recorded interviews were transcribed into text format. The written material was read through several times in order to be immersed in the data. Open coding was initially done to take notes and headings while reading the text. These headings were written onto a coding sheets, and categories were freely generated after which they were grouped under higher order headings. This was done to reduce the number of categories. Each of these new categories was then named using content-characteristic words.

III. RESULTS

Figure 1 presents a chart on the average scores of the anxiety and depression weighting using the HADS scale, and Figure 2 presents the weightings of the cancer patients' scores based on their Africentric worldview using the ACWV scale and their Africentric coping ratings using the ACSI scale. From Figure 1, it can be observed that the depression score, which was 5.42, is higher compared to the anxiety weighting of 4.08. This result shows that the cancer patients contacted experienced higher levels of depression compared to anxiety. Both weights also suggest that the cancer patients contacted demonstrated a considerable level of anxiety and depression. From Figure 2, it can be observed that the Africentric Coping had a mean score of 24.43 compared to the Africentric Worldview, which scored a much higher average of 89.16. This margin suggests that the Africentric worldview among cancer patients is higher compared to their Africentric coping.

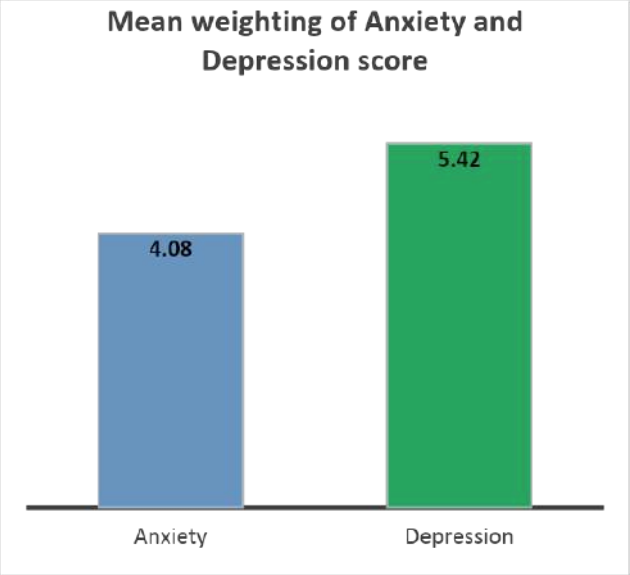

Figure 1: Anxiety and Depression Weighting

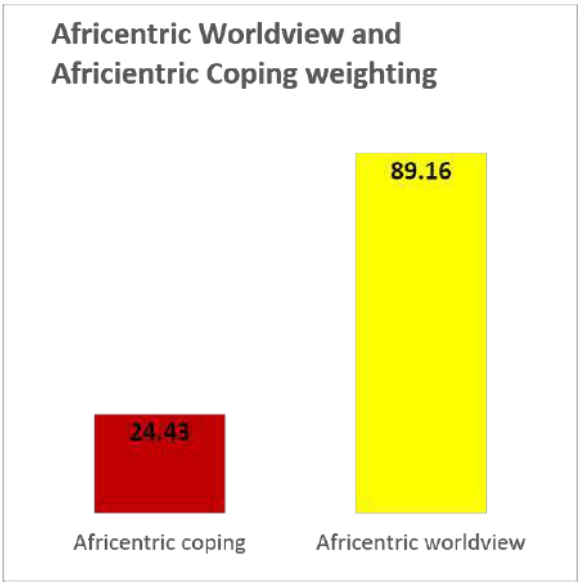

Figure 2: Africentric Worldview and Coping

In testing the hypothesis, which states that there is no statistically significant relationship between psychological distress and coping mechanisms, a correlation analysis was performed using the Pearson's product moment correlation coefficient.

Table 2 presents the results of the analysis. From the table, results show that there is a significant relationship between psychological distress and coping at 0.05 significance level. The negative correlation value (r = -0.297, p = 0.018) suggests that there is an inverse relationship between psychological distress and coping. This means that patients whose psychological distress is high have a lower coping mechanism or vice versa.

Table 2: Correlation Analysis of Psychological Distress and Coping Mechanism

		Psychological Distress	Coping
Psychological Distress	Pearson Correlation	1.000	-0.297
	Sig. (1-tailed)		0.018
	N	50	50
Coping	Pearson Correlation	-0.297	1.000
	Sig. (1-tailed)	0.018	
	N	50	50

Significance at 0.05 level

In testing the hypotheses that there is no significant relationship between psychological distress and Africentric Worldview a correlation analysis was performed, and the results are recorded in Table 3. The Pearson correlation in the table was -0.138, with a p-value of 0.17 > 0.05. This result supports the null hypothesis in that we fail to reject it. This result shows that there is no significant relationship between psychological distress and Africentric Worldview.

Table 3: Correlation Analysis of Africentric Worldview and Coping Mechanism

		Psychological Distress	Coping
Psychological Distress	Pearson Correlation	1.000	-0.138
	Sig. (1-tailed)		0.170
	N	50	50
Africentric Worldview	Pearson Correlation	-0.138	1.000
	Sig. (1-tailed)	0.170	
	N	50	50

Significance at 0.05 level

Table 4: Results of Hierarchical Multiple Regression Analyses for the moderation effect of Africentric worldview on the relationship between coping and psychological distress

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	Constant	3.32	11.12	0.00	0.30	0.766
	Coping	-0.47	0.18	-0.36	-2.55	0.014
	Africentric Worldview	0.20	0.13	0.22	1.52	0.134
R^2 =0.13 F=3.56 p-value=0.036						
	Constant	-70.44	43.75	0.00	-1.61	0.114
	Coping	-1.01	0.48	-1.11	-2.09	0.042
	Africentric	2.25	1.73	1.96	1.46	0.151
	Coping x Africentric Worldview	-0.03	0.02	-2.73	-1.74	0.088
R^2 =0.19 F=3.48 p-value=0.023						

The study hypothesized that Africentric worldview does not moderate the relationship between coping and psychological distress. This hypothesis was analyzed using hierarchical multiple regression, with the result reported in Table 4.

From Model 1, results show that the model is significant with F = 3.56 and a p-value of 0.036<0.05. The value of 0.13 for R^2 suggests that the first model can explain 13% of the variation in psychological distress. It can also be shown from Model 1 that coping has a significant influence on the psychological distress of the patients. The negative coefficient for coping (B = - 0.47, p = 0.014) suggests that an increase in coping mechanisms can decrease psychological distress. However, there was no significant effect of Africentric Worldview on psychological distress in model 1.

The Model 2 was also statistically significant, with F = 3.48 and a p-value of 0.023<0.05. The R^2 value of 0.19 suggests that the model can explain 19% of the variation in psychological distress. This is an improvement in the model's prediction ability from model 1. From the model 2 again, coping was statistically significant in influencing psychological distress with B = - 1.01, p = 0.042< 0.05. However, the Africentric worldview and its moderation effect have no significant effect on psychological distress. Therefore, we fail to reject the hypothesis that an Africentric worldview has no moderating effect on the relationship between psychological distress and coping mechanisms. This means that the African worldview cannot influence or alter the relationship between coping and psychological distress.

The qualitative interviews solicited the views of patients on cancer, psychological distress and coping. After the analysis, five themes were identified and have been presented in Table 5 with their respective quotations.

Table 5: Themes from Qualitative Interviews

Themes	Quotations
Knowledge of Cancer	*"I have no idea about cancer and the doctor didn't tell me anything about it. In fact, I wish to know much about it."(sic)*
Psychological Effect	*"I became miserable and worried ... I was really distressed and worried." (sic)*
Physiological Effect	*"I was thinking about it every time and it rendered me sleepless night... I even lost weight because I couldn't sleep nor relax, I thought I will die." (sic)*
Social Support	*"I do not have anybody to share my difficulties with... nobody comes to me... even though I'm married we are separated because of this issue." (sic)*
Means of Coping	*"I had a lot of prayers from the church. I was part of the prayer warrior group and they really assisted me in prayers. I pray every morning, afternoon and evening." (sic)*

3.1 Knowledge of Cancer

It appeared that most of the patients interviewed had no knowledge about cancer. All they could say was that they were told by the doctor of suffering from cancer but they had no idea of what it meant.

> *"I have no idea about cancer and the doctor didn't tell me anything about it. In fact, I wish to know much about it."* (sic)

It is presumed from the participant's statement that the doctor did not have much discussion with her about cancer. Apart from giving her results of the diagnosis and the treatment regimen, the doctor did not give further information about the illness.

> *"I don't know the cause. Sometimes they say it's the kind of food we eat and the things we drink."* (sic)

Lack of knowledge about the illness could affect the patients' handling of the condition..

3.2 Psychological Effect

The illness exposed some participants to some negative psychological effects. It is natural for some people to express fear and worry when told of an illness. It was evident that some patients were extremely worried, miserable and distressed when they were initially informed about their illness. It affected their state of mind and kept them thinking.

> *"I became miserable and worried ... I was really distressed and worried."* (sic)

This goes to confirm the results from the quantitative analysis that patients often express psychological distress when diagnosed with cancer. The anxiety experienced coupled with the expression of worry could lead to depression.

3.3 Physiological Effect

Participants' state of mind or psychological status equally impacted on their physiology. Some indicated that their state of mind rendered them unable to eat or sleep.

> *"I was thinking about it every time and it rendered me sleepless night... I even lost weight because I couldn't sleep nor relax, I thought I will die."* (sic)

Another patient noted that the illness affected her physical appearance leading to skin wrinkles and loss of complexion. She was told it was as a result of the injection and once it was completed, the skin colour would come to normal so she shouldn't be worried about it.

3.4 Social Support

Social support in times of such chronic condition is key to the patient's recovery. Receiving some form of support from the family or friends is very important for the person to deal with the illness. It was evident from the interview that most of the patients did not receive much support from the family. One patient opined that she had been neglected by the family because of her illness.

> *"I do not have anybody to share my difficulties with... nobody comes to me... even though I'm married we are separated because of this issue."* (sic)

Considering the state in which patients find themselves, it is important that they get enough

support to enable them cope effectively. Without adequate support, patients' condition may deteriorate at a faster pace.

3.5 Means of Coping

It was consistent from the interviews that participants adopted spiritual means of coping with the illness through prayers and singing. Most of them spent a greater part of their time praying to God for healing. Their belief in God made them commit their worries to Him through prayers. Some were supported with prayers from the church.

> *"I had a lot of prayers from the church. I was part of the prayer warrior group and they really assisted me in prayers. I pray every morning, afternoon and evening."* (sic)

The patients believed that even though they were sick and still had faith in God, their sickness was not a result of any spiritual cause.

> *"I believe it is not spiritual illness since it is not only me. I believe God will deliver me. When you see others you try to encourage yourself."* (sic)

Some patients coped by encouraging their own self since they did not have family members to share their challenges with; the last resort was to encourage themselves, and this kept them going.

To a larger extent, they encouraged others in similar situations. They advised other cancer patients not to be worried, but follow the treatment regimen and desist from discussing their illness with people.

IV. DISCUSSION

The study explored coping and psychological distress among cancer patients and how the Africentric worldview moderated the relationship between coping and distress. The findings revealed a negative relationship between coping and psychological distress among patients which is consistent with the outcome of studies by Smith et al. (2003), Naaman et al. (2009), and Al-Azri et al. (2009). However, this finding is inconsistent with the outcome of studies by Holahan et al. (2005). The qualitative analysis confirmed that most patients utilized spirituality or religious practice as means of coping. A meta-analysis involving 178 studies investigating the relationship between coping and depression found out that 67% of the studies reported inverse relationships (Koenig, 2007) and 7% found positive relationships with depression (Pargament et al., 2004). In view of this, the result of this current study supports the findings of Koenig (2007) and disagrees with the outcome of studies by Pargament et al. (2004). Researches investigating the relationship between coping and psychological distress have found problem-focused strategies and emotion-focused strategies to be generally associated with positive outcomes such as better well-being and good quality of life, less psychological distress, and healthier growth in cancer patients (Al-Azri et al., 2009). Hence, this result confirms the claim that coping reduces distress. The possible explanation for this inverse relationship is that religion and spirituality serves as protective factor which provides some kind of support for people when they are faced with challenges. Patients' religious beliefs can serve as coping mechanism which gives them inspiration and hope in times of challenges and makes them less anxious and depressed. This is evident in the qualitative study where patients adopted spiritual means of coping with the illness by praying and singing. Powell et al. (2003) reviewed prospective correlation studies on religion, spirituality and psychological health, and mortality outcomes.

Powell et al. found out that people who attended religious services more frequently than other patients early in the study were less likely to die during the remainder of the study period.

From the qualitative findings, it was evident that majority of cancer patients had limited information about cancer, and this resulted in interpreting the condition negatively thereby resulting in distress. Also, the lack of social support as evidence in the qualitative study could have contributed to patients' distress, making them unable to cope. Further explanation for significant negative relationship could be due to the number of years patients had been diagnosed with the disease. Participants for this study had been diagnosed for a year or more and would have

gained strategies to deal with the fear associated with their illness. Thus, it is presumed that the longer the period one had been living with the condition, the more likely they would adopt appropriate coping strategies to reduce the distress. The stage in cancer diagnoses in which an individual finds the self can also explain this inverse relationship. Patients in stages two and three might perceive the situation as more stressful and beyond control than those in stages zero or one, and might give up coping, thereby increasing the distress. Again, if participants believed they had the ability to deal with the condition (cancer), then they would cope effectively to reduce their distress. However, the distress could escalate if they did not have the perceived ability to deal with the situation.

It was hypothesized that there would be no significant relationship between Africentric worldview and psychological distress. Africentric worldview is the worldview of Africans descent and it includes beliefs, values, and behaviours of the African people (Belgrave & Allison, 2006). African descent live by these worldviews as a means to make sense of their world and help them adapt to circumstance of life (Neblett et al., 2010).

Psychologists with African-centred perspectives have highlighted the importance of Africentric worldview in supporting healthy psychological functioning (Neblett et al., 2010), but this is not the case in the current study. The findings from this study showed a non-significant relationship between Africentric worldview and psychological distress. This is inconsistent with previous studies which reported that high levels of ethnic identity results in lower psychological distress hence a better psychological well-being (Walker et al., 2008; Yip et al., & 2006). Williams et al. (2012) conducted a study to explore the role of ethnic identity in symptoms of anxiety and depression.

In all, 572 study participants were recruited and administered a battery of tests to measure their levels of anxiety and depression. The data analysis showed that African Americans who had higher levels of ethnic identity experienced lower amount of cognitive and somatic anxiety, state anxiety and depression. Again, Millet (1996) reported a link between worldview and Black university students' depression, such that lower Africentric worldview scores were associated with greater depression.

The changing lifestyle of Ghanaians may be a possible reason for the current finding. Ghanaians are becoming more westernized and have left behind most of their cultural heritage. This is a shift from the African worldview which emphasizes collectivism over individualism. Thus, families no longer provide adequate support for their cancer patients. Additionally, there is a deviation from preference for receiving stimuli and information orally (orality). The African by nature, expresses and shares their feelings freely with others. However, in the qualitative analysis, some patients encouraged others not to talk about their illness but rather keep it to themselves.

These dimensions (collectivism and orality) are thought to have sustained enslaved Africans who held onto them as a means of survival in an oppressive environment (Nobles, 1991), and to have been passed down through the generations (Asante, 2003; Grills, 2004; Belgrave & Allison, 2006). These values and principles shared by people of African descent differ clearly from those of people with Eurocentric cultural background.

The study found out that Africentric worldview did not moderate the relationship between coping and psychological distress. A possible reason for which Africentric worldview may influence psychological adjustment is due to its moderating effect. The belief in Africentric worldview may serve as a buffer between stressful life event and poor health (Neblett et al., 2010) by reducing the impact of stress. The current findings corroborate the results of Oti-Boadi and Mate-Kole (2018) who reported that Africentric worldview did not moderate the relationship between parenting stress and psychological distress among mothers of children with intellectual disability in Ghana.

The current finding is inconsistent with a study by Williams et al. (2012) which revealed that Africans' ethnic identity served as a buffer against distress and enhanced psychological well-being (Williams et al., 2012). Additionally, the findings of the current study contradict that of Nanewortor (2017) who found out that the moderating role of

Afrocentrism weakened the relationship between psychological distress and suicidal ideation. Also, Myers et al., (1996) in a study found out that beliefs associated with an Africentric worldview acted as a buffer between stressful life events and resultant poor health by reducing the impact of stress. However, the present finding did not support these findings. The reason for this result could be attributed to the small sample size used in the current study. All the reviewed studies used larger sample sizes compared to the small sample size of the current study. For example, Williams et al., (2012) in their study used 572 study participants and found significant relationship between Africentric worldview and psychological distress. However, the current study used only 50 participants and found insignificant relationship. It is therefore recommended that future researchers will utilize larger sample sizes in their studies.

V. CONCLUSION

The study yielded reliable results that add to the literature on cancer and psychological distress. It highlighted the common mental health problems among cancer patients in Ghana, as the identification of these common mental health problems would form the basis for incorporating psychological care into therapies. From the study, it was evident that an inverse relationship exists between coping and psychological distress. It was confirmed that patients adopted spiritual coping strategy to deal with their distress, that they did not have adequate knowledge about the condition, and access to any form of social support was limited. This revelation provides a better understanding of some coping strategies employed by cancer patients and this will enable health care professionals understand these patients in a more meaningful manner. The Ghana Psychological Council in collaboration with the Ghana Health Service and Ministry of Health should develop guidelines that incorporates appropriate spiritual coping strategies into the psychological care of cancer patients. Africentric worldview did not significantly correlate with psychological distress, as it failed to moderate the relationship between coping and psychological distress. That means ethnic background and beliefs as Ghanaians may not necessary help cancer patients in dealing with psychological distress and coping. The results will assist care-givers and the community at large to understand the complex nature of the illness and provide the needed support for patients to promote better coping strategies. It is necessary that health care providers intensify education on cancer and sensitize the public on the need for social support in managing cancer. The treatment of cancer should adopt the biopsychosocial approach in order to provide comprehensive care to patients. Thus, the treatment regimen for cancer patients should include psychological care, biomedical treatment, social support and appropriate spiritual care. This reiterates the need for psychological services to be fully covered by the national health insurance to enhance patients' access to psychological services. Limitations of the study are that the results cannot be used to determine causality. The data does not allow us to infer the direction of causality between coping and psychological distress. Also, the reliance on self-report measures predisposes the findings to subjective biases. The small sample size and the adopted sampling techniques weaken the generalizability of the study results. However, the sampling techniques were used because it is practically difficult to randomly sample cancer patients in Ghana for study due to the sensitivity of the condition. It is recommended that future studies would consider a large sample size and adopt a longitudinal approach to be able to observe the variables over a longer period of time.

Ethical Information

An ethical clearance was obtained from the University of Cape Coast Institutional Review Board of the School of Graduate Studies and Research, and the two hospitals before the commencement of the study. This was to ensure that the study was ethically sound and did not violate the rights and privacy of the vulnerable participants.

Consent

Informed consent was obtained from each eligible participant after they had been provided with detailed information about the study.

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A Young Lady with Unilateral Sudden Painful Complete Ophthalmoplegia: Tolosa- Hunt Syndrome

Richmond R Gomes

ABSTRACT

Tolosa–Hunt syndrome (THS) is a painful ophthalmoplegia characterized by recurrent unilateral periorbital or hemicranial pain, ipsilateral ocular motor nerve paralysis, oculosympathetic paralysis, sensory loss in the distribution of the ophthalmic and occasionally the maxillary division of the trigeminal nerve and a rapid response to steroids. Various combina- tions of these cranial nerve palsies may occur, localizing the pathological process to the region of the cavernous sinus/superior orbital fissure. Our report describes a 40-year-old young lady who presented with sudden, severe right hemicranial and periorbital pain with ipsilateral 3rd,4th, 6th cranial nerve palsies along with ophthalmic division of trigeminal nerve involvement. MRI of orbit showed hypo-intense lesion in right cavernous sinus extending to right superior orbital fissure (suggestive of granulomatous infiltration). THS is a diagnosis of exclusion. After taking oral steroid her pain was relieved quickly and cranial nerve palsies reversed within two weeks.

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Tolosa–Hunt syndrome (THS) is a painful ophthalmoplegia characterized by recurrent unilateral periorbital or hemicranial pain, ipsilateral ocular motor nerve paralysis, oculosympathetic paralysis, sensory loss in the distribution of the ophthalmic and occasionally the maxillary division of the trigeminal nerve and a rapid response to steroids. Various combinations of these cranial nerve palsies may occur, localizing the pathological process to the region of the cavernous sinus/superior orbital fissure. Our report describes a 40-year-old young lady who presented with sudden, severe right hemicranial and periorbital pain with ipsilateral 3rd,4th, 6th cranial nerve palsies along with ophthalmic division of trigeminal nerve involvement. MRI of orbit showed hypo-intense lesion in right cavernous sinus extending to right superior orbital fissure (suggestive of granulomatous infiltration). THS is a diagnosis of exclusion. After taking oral steroid her pain was relieved quickly and cranial nerve palsies reversed within two weeks.

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I. INTRODUCTION

Painful ophthalmoplegia refers to periorbital or hemicranial pain plus ipsilateral ocular motor nerve palsies with or without oculo-sympathetic paralysis, sensory loss in the distribution of the ophthalmic and occasionally the maxillary division of the trigeminal nerve can co-occur[1]. The only anatomic locations where the ocular motor nerves, the first division of the trigeminal nerve and the internal carotid artery co-exist are the cavernous sinus and superior orbital fissure[1].

Painful ophthalmoplegia can result from neoplasic, vascular, inflammatory or infectious disease. Tolosa-Hunt syndrome (THS), a steroid-responsive painful ophthalmoplegia secondary to idiopathic, sterile, granulomatous inflammation of the cavernous sinus or orbital apex [2,3], was first described by Tolosa in 1954 [4]. In 1961, Hunt et al [5], reported six cases of painful ophthalmoplegia; that rapidly improved with the use of steroids Its pathology is described as fibroblastic, lymphocytic, and plasmacytic infiltration of the cavernous sinus. A possible risk factor for Tolosa-Hunt syndrome is a recent viral infection.THS criteria was first provided by the International Headache Society (IHS) in 1988[6], and modified (Table 1) in the revised IHS headache classification of 2004[7]. With no sex predilection Tolosa-Hunt syndrome can affect people of any age from 1st to 8th decades of life. THS can be classified[8], according to neuroimaging in benign (when no abnormal neuroimaging can be found), inflammatory (when inflammatory findings are shown on MRI or biopsy) and symptomatic (when neuroimaging reveals specific lesion). The characteristic findings are pain which may precede the ophthalmoplegia by several days, or may not appear until sometime later. Pain is steady, felt behind the eye often described as "gnawing" or "boring". The neurological involvement is not confined to the third cranial nerve, but may include the fourth, sixth, and first division of the fifth cranial nerves. Periarterial sympathetic fibers and the optic nerve may also be involved. Symptoms last for days to weeks.

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Spontaneous remissions may occur and sometimes with residual neurological deficit. As many as 30-40% of individuals may have a relapse of Tolosa-Hunt syndrome, usually on the same side. There is no systemic reaction[9] .THS is a diagnosis of exclusion; In fact, during the initial patient evaluation there are often no clues in the history or physical examination to distinguish Tolosa-Hunt syndrome from other causes of painful ophthalmoplegia. Therefore, the clinician should be aware of causes of parasellar syndrome and other entities producing painful ophthalmoplegia. diagnostic work-up[1], includes routine blood work, inflammatory markers, fasting glucose, CSF evaluation, ANA, anti-ds DNA, c-ANCA, MRI, conventional angiography or MRA. To establish the diagnosis biopsy is required through neurosurgical approach which is rarely done[10, 11,12,13,14]. Treatment should be with high dose steroids (1 mg/kg/d) tapered slowly over 3 to 4 months[1].

II. CASE REPORT

We present the case of a 40-year-old Bangladeshi female previously healthy, whose relevant medical history only episodic bronchial asthma since childhood. The patient was admitted to our hospital for right periorbital pain, drooping of right eye lid and diplopia. Four days prior to admission, the patient started severe right periorbital pain. The pain was sudden in onset, global, continuous, associated with vomiting for several times, this relieve the headache to some extent. The following morning when she woke up from sleep, found that she cannot open her right eye voluntarily but can do manually. Her left eye was normal as well as vision. She also had horizontal diplopia on right eye. As pain did not cede after the administration of NSAID, which was the reason why the patient decided to resort to the hospital. She indicated that she had had similar episodes of headache preceded by blurring of vision in the same eye for more than a year. She denied any fever, limb weakness, convulsion, swallowing, sensory or sphincteric disturbances, joint pain, rash or any OCP use.

On examination, her weight 79 kg, height: 1.47 mt, 20/20 vision, normal vitals, normal fundus bilaterally, right complete ptosis, paresis of the third, fourth and sixth right cranial nerves (Figure 1), and hypoesthesia over the first division of the right trigeminal nerve. Pupil was dilated, non-reacting to light on right side. The left eye and the rest of the physical examination did not show further abnormalities.

Figure 1: Showing Right Sided Complete Ptosis With Complete Ophthalmoplegia

Her initial laboratory tests showed white blood cell count, 9.400/ml; red blood cell count, 4.56×10/µl; hemoglobin, 13.1 g/dl; platelets 183×103; ESR 89 mm in 1st hour. Glucose, 82 mg/dl, blood urea nitrogen, 10 mg/dl; creatinine, 0.83 mg/dl; ELISA for HIV, negative; D-Dimer, 351 ng/ml (<500 ng/ml). Thyroid function tests showed TSH, 1.81 µUI/ml (0.34-5.60); free T3, 3.64 pg/ml (2.50 - 3.90); free T4, 0.96 ng/ dl (0,54-1.64). The cerebral spinal fluid reported 4 mononuclear cell/uL; glucose, 69 mg/dl; proteins, 55 mg/dl; ADA and PCR in CFS for tuberculosis were negative. ANA was positive in cytoplasmic pattern 1:40; anti-ds DNA, ENA profile, c-ANCA and p-ANCA were negative. CT scan of brain and paranasal sinus, MRV and MRA of the brain were normal (figure 3). (SOV) thrombosis was seen.

MRI of brain with orbit with contrast was done in multiple axial, coronal and sagittal sections which showed iso to hypo-intense lesion in right cavernous sinus extending up to right superior orbital fissure(figure 2). The lesion was brilliantly contrast enhancing and causing significant compression of the neurovascular structure of right cavernous sinus. Both optic nerves were spared.ICA was also normal in diameter.

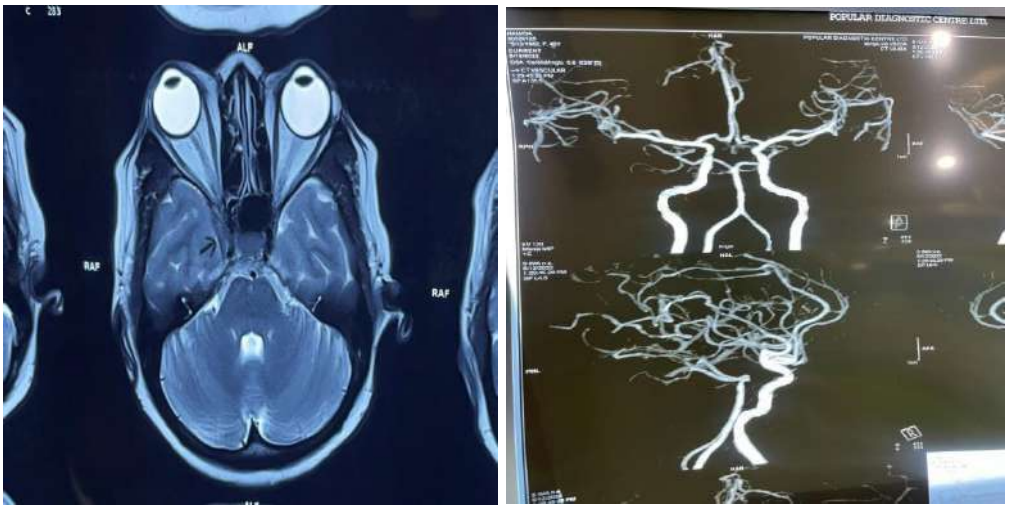

Figure 2 & Figure 3: Showing Axial MRI Brain T1W Image Reveals Intense Enhancement of the Soft-Tissue Mass Within the Right Cavernous Sinus (Black Arrow) and Normal MRA of Brain Respectively

Since the studies showed no abnormalities and we excluded neoplasic, infectious, vascular, thyroid and metabolic causes of painful ophthalmoplegia, we decided to start treatment for Tolosa-Hunt Syndrome with metilprednisolne 1 gr IV daily for 3 days, and noticed significant response of the right periorbital pain, palpebral ptosis and the ipsilateral ocular motor nerve palsies in next 2 weeks. At day 4, we changed treatment to prednisone at 1 mg/kg daily. Two weeks later, we initiated steroid tapering every week, and at week 12 the patient was asymptomatic and her neuro-ophthalmologic examination was completely normal.(Figure 4). The probable diagnosis of Tolosa–Hunt Syndrome was retained in the face of the negativity of all investigations carried out as well as spectacular response to treatment.

Figure 4: Complete Resolution of Right Sided Ptosis at 4 Weeks of Treatment with Prednisolone

III. DISCUSSION

Tolosa–Hunt syndrome is a painful ophthalmoplegia due to nonspecific inflammation of the cavernous sinus. Existence of this syndrome has long been debated, and its nosological framework was discussed[15]. Tolosa[4] first described the condition in 1954, in a patient with unilateral recurrent painful ophthalmoplegia involving cranial nerves III, IV, VI and V1. The patient was imaged using carotid angiography and segmental narrowing of the carotid siphon was seen. Hunt et al. described 6 patients with similar clinical findings in 1961, and proposed a low-grade non-specific inflammation of the cavernous sinus and its walls as the cause of the syndrome[5].

Pathologically, infiltration of lymphocytes and plasma cells as well as thickening of the dura mater was seen. In 1966 Smith and Taxdal termed this condition as Tolosa-Hunt syndrome[16].

In 1988, THS criteria were provided by the International Headache Society (IHS), and further revised in 2004 (Table I).

Table 1: ICHD-II Classification Part Three. Cranial Neuralgias, Central and Primary Facial Pain and Other Headaches

Tolosa-Hunt syndrome

Episodic orbital pain associated with paralysis of one or more of the third, fourth and/or sixth cranial nerves which usually resolves spontaneously but tends to relapse and remit.

Diagnostic criteria:

a) One or more episodes of unilateral orbital pain persisting for weeks if untreated.
b) B. Paresis of one or more of the third, fourth and/or sixth cranial nerves and/or demonstration of granulomas by MRI or biopsy.
c) Paresis coincides with the onset of pain or follows it within 2 weeks.
d) Pain and paresis resolve within 72 h when treated adequately with corticosteroids.
e) Other causes have been excluded by appropriate investigations.

The etiology of Tolosa-Hunt syndrome remains unknown. No information is available as to what triggers the inflammatory process in the region of the cavernous sinus/superior orbital fissure. It seems that the syndrome falls within the range of idiopathic orbital inflammation (pseudotumour). 17 Thus, "non-specific" inflammation typically causes an acute orbitopathy. If located more posteriorly, the inflammatory process involves the cavernous sinus/superior orbital fissure, producing the Tolosa-Hunt syndrome. Rarely, the inflammation may spread intracranially. 18,19,20. Tolosa-Hunt syndrome is caused by an inflammatory process. Tolosa4 originally described non-specific, chronic inflammation with proliferation of fibroblasts and infiltration of the septa and wall of the cavernous sinus with lymphocytes and plasma cells. Hunt et al 5 corroborated these findings, emphasizing the lack of necrosis and pointed out that "such inflammatory changes, in a tight connective tissue, may exert pressure upon the penetrating nerves." Subsequent reports have shown granulomatous inflammation, with epithelioid cells and occasional giant cells 6,12 Necrosis may also be seen. There have been no reports of an infectious organism associated with Tolosa-Hunt syndrome.

Age of patients varies between 4 and 75 years 23, but THS can affect people of any age, without predominance of sex. In general, it is unilateral, but cases of bilaterality have been reported 9. Our patient was 40 years old, and she presented with unilateral symptoms. The diagnosis of this syndrome was retained in the face of the negativity of all the investigations carried out as well as the response to treatment. Extensive diagnosis tests to exclude other common etiologies of painful ophthalmoplegia were not found in our patient.

With careful clinical examination, pain associated with typical cranial nerve palsies localizes the pathological process to the regions of the cavernous sinus/superior orbital fissure. As noted above, current neuroimaging modalities allow visualization of the area of suspected pathology.

Contrast enhanced MRI with multiple views, particularly coronal sections, should be the initial diagnostic study performed. Numerous reports have demonstrated an area of abnormal soft tissue in the region of the cavernous sinus in most, but not all, patients with Tolosa-Hunt syndrome 14, 24, 25, 26, 27. Typically, the abnormality is seen as an intermediate signal intensity on T1 and intermediate weighted images, consistent with an inflammatory process. In addition, there is enhancement of the abnormal area after intravenous injection of paramagnetic contrast. With corticosteroid therapy, the abnormal area decreases in volume and signal intensity in most reported cases.

High resolution CT can also demonstrate soft tissue changes in the region of the cavernous sinus/ superior orbital fissure, but is less sensitive than MRI. 2,24 This is due to lack of sensitivity to soft tissue change with superimposed beam hardening and bone streak artifacts. Thus, even if CT is normal, MRI must still be performed to appropriately evaluate the region of the cavernous sinus or superior orbital fissure.

The major limitation of MRI findings in Tolosa-Hunt syndrome is their lack of specificity. Thus, Yousem et al 24 examined 11 patients and reported pathological MRI findings in the cavernous sinus in nine. In six of these nine the affected cavernous sinus was enlarged; in five of nine it had a convex lateral wall. Extension into the orbital apex was seen in eight patients. Yet the signal characteristics (hypointense relative to fat and isointense with muscle on T1 weighted images; isointense with fat on T2 weighted scans) were also consistent with meningioma, lymphoma, and sarcoidosis. Some authors reported that using carotid angiography there was segmental narrowing of the carotid siphon was seen.28

Because of this fundamental limitation of initial imaging studies, some authorities would suggest that resolution of imaging abnormalities after a course of systemic corticosteroids should be considered diagnostic of THS.14,29. However, caution is advised when assessing the salutary effects of steroids, as improvement both clinically and radiologically may occur with other disease processes. ”False positive” steroid responsiveness with a “remitting” course can be seen with both malignant processes (for example, lymphoma) as well as more benign disorders (for example, vasculitis). 30

Categorically, Tolosa-Hunt syndrome is a diagnosis of exclusion requiring careful patient evaluation to rule out tumor, vascular causes, or other forms of inflammation in the region of the cavernous sinus/superior orbital fissure.

Occasional reports have documented a raised erythrocyte sedimentation rate and leukocytosis in the acute stage of Tolosa-Hunt syndrome. 12, 21, 31, 32, 33 Similarly, positive LE cell preparation and antinuclear antibody concentrations 32,34 have been documented in patients with Tolosa-Hunt syndrome, but there is no convincing evidence that such patients either have or will develop connective tissue disorder.

In general, CSF examination should also be unremarkable, although rarely raised protein and mild pleocytosis have been reported. However, if CSF abnormalities persist, the diagnosis of Tolosa-Hunt syndrome is untenable, and further diagnostic evaluations are required. As noted above, MRI is the initial diagnostic study to be performed in patients with a disorder of the cavernous sinus or superior orbital fissure.

Computed tomography is a very useful adjunct in detecting bone changes (for example, erosion, hyperostosis) as well as (perisellar) calcification.

Cerebral angiography has detected abnormalities in the intracavernous carotid artery in patients with Tolosa-Hunt syndrome.12,13, 21,32,35,36,37

These have been described as “segmental narrowing”, “slight irregularity”, or “constriction”, and will resolve with corticosteroid therapy. The role of noninvasive vascular MRI techniques (MR angiography and venography) has not been defined in patients with the syndrome but these may prove to be valuable adjuncts in diagnostic evaluation.

Neurosurgical biopsy is only rarely employed to establish the diagnosis. 12, 13, 21, 22, 32, 35. This can be technically difficult and should only be performed by experienced neurosurgeons. It usually involves biopsy of the dural wall of the cavernous sinus. Although generally a procedure of last resort, it should be considered in patients with rapidly progressive neurological deficits, lack of steroid responsiveness, or persistent abnormalities on neuroimaging studies.

The spectacular efficacy of corticosteroid therapy is suggestive but not specific. Hence it is necessary to conduct prolonged monitoring of several months to retain this diagnosis definitively.

Treatment consists of a high dose of oral prednisone for 4 weeks. Significant improvement is often evident from the first 24 hours of treatment 38. Our patient received a dose of prednisone 60 mg per day, and after two weeks, a complete dramatic regression of the symptoms was observed. Steroid therapy was tapered over next 4 months period. After more than six months of monitoring, no clinical abnormality was observed in our patient. Zhang et al.15 reported that 77.5% of patients obtained complete relief of orbital pain within a week after the start of steroid treatment. This spectacular efficacy of corticosteroid therapy has been observed in several other studies 39, 40, 41, 42.

IV. CONCLUSION

Tolosa-Hunt syndrome (THS) is a rare disorder. Although the pathogenetic basis of THS remains unknown, from a practical clinical standpoint it can be regarded as a distinct entity which may be simulated by various other disorders. Tolosa-Hunt syndrome is not a fatal disorder. It remains a diagnosis of exclusion. It cannot be emphasized too strongly that patients suspected of having the syndrome require careful evaluation, appropriate treatment, and scrupulous follow up observation.

We would also like to emphasize the importance of steroid treatment; even though there is no standardized dose indicated in the literature, this type of treatment with steroids at a dose of 1 mg/kg/day tapered slowly over 3 to 4 months has been well received.

Conflict of interest: None declared

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