

SSMJ
SOUTH SUDAN MEDICAL JOURNAL

ISSN 2309- 4605

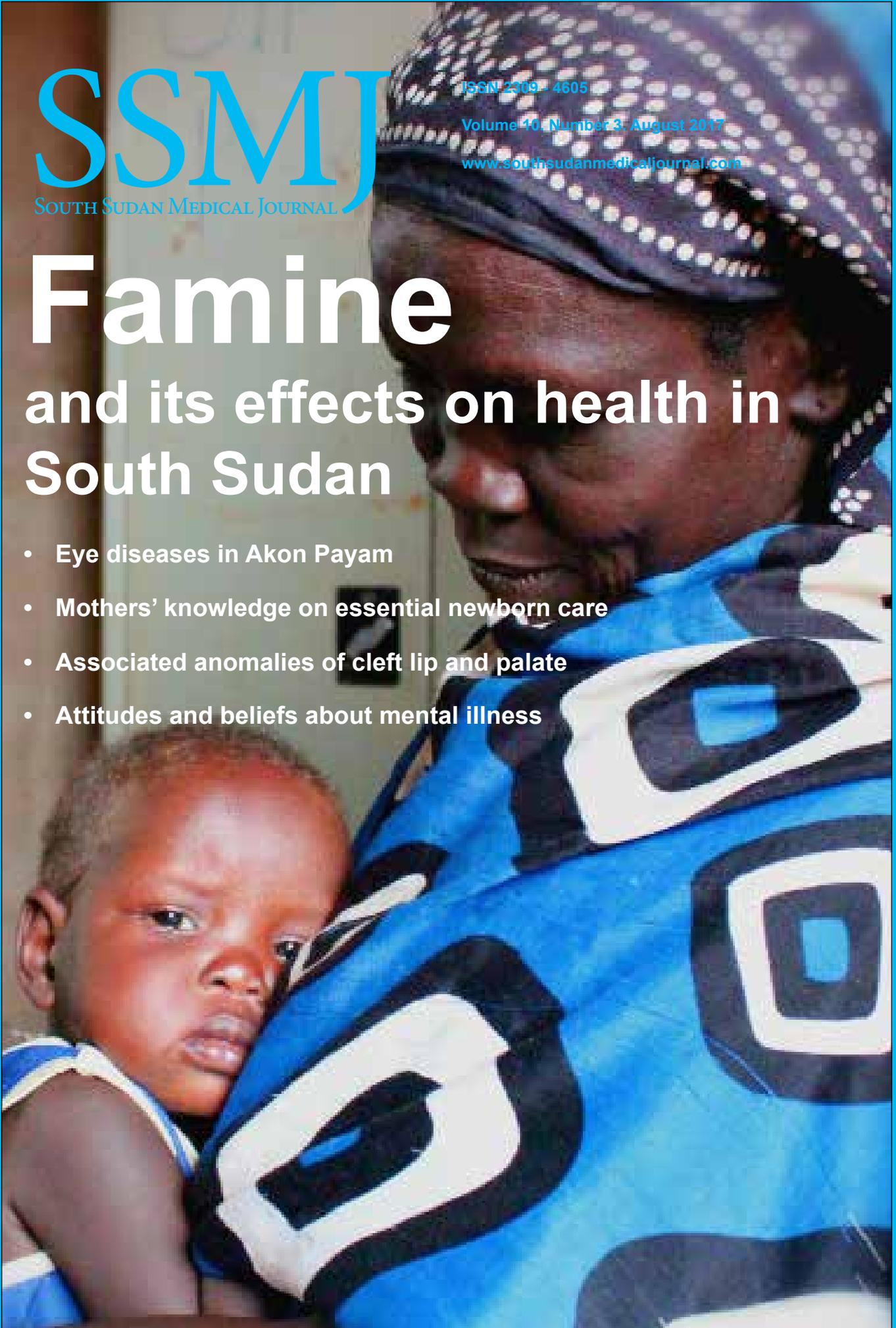
Volume 10, Number 3, August 2017

www.southsudanmedicaljournal.com

Famine

and its effects on health in South Sudan

- Eye diseases in Akon Payam
- Mothers' knowledge on essential newborn care
- Associated anomalies of cleft lip and palate
- Attitudes and beliefs about mental illness



EDITORIAL

Dr Tedros Adhanom: New WHO Director General [Ayat C Jervase](#) 51

ORIGINAL RESEARCH

Eye diseases in Akon Payam, South Sudan [Kenneth Lado L Sube, Joseph Monday Lawrence, Richard Lado L Loro, Anthony Y Lasuba, Oromo Francis Seriano and Almutez Gharaibeh](#) 52

Mothers' knowledge on essential newborn care at Juba Teaching Hospital, South Sudan [Lucy A Meseka, Lucy W Mungai and Rachael Musoke](#) 56

Associated anomalies in cleft lip and palate: analysis of 811 consecutive patients [Adesina O A, Efunkoya A A, Olaitan A, Adesina O O ..](#) 60

Attitudes and beliefs about mental illness among relatives of patients with schizophrenia [Ajak Manguak Agau and Anne Bodilsen](#) 64

COMMENTARY

Famine and its effects on health in South Sudan [Edward Eremugo Luka and Ann Burgess](#) 69

SHORT ITEMS

Samaritan's Purse in South Sudan 71

Obituary: Dr Festo Jambo Elias72

Indikit72

BACK COVER South Sudan Medical Journal Updated Guidelines for Authors 73

Front cover photo: Nutrition Clinic at Yida refugee camp in South Sudan. Photo by Shanna Carter/Samaritan's Purse

SSMJ SOUTH SUDAN MEDICAL JOURNAL
ISSN 2309 - 4605

Volume 10. No. 3. www.southsudanmedicaljournal.com

A Publication of the South Sudan Doctors' Association

EDITOR-IN-CHIEF

Dr Edward Eremugo Luka

South Sudan Doctors' Association

Ministerial Complex

Juba, South Sudan

opikiza@yahoo.com Twitter: [@eremugo](#)

ASSOCIATE EDITORS

Dr Wani Gindala Mena

Department of Ophthalmology

Juba Teaching Hospital,

PO Box 88, Juba

South Sudan

wanigmene@gmail.com

Dr Eluzai Abe Hakim

Department of Adult Medicine & Rehabilitation

St Mary's Hospital, Newport,

Isle of Wight PO30 5TG, UK

Eluzai_hakim@yahoo.co.uk

EDITORIAL BOARD

Dr James Ayrton

james.ayrton@gmail.com

Dr Charles Bakhiet

sakib@squ.edu.om

Professor James Gita Hakim

jhakim@mweb.co.zw

Dr Ayat C. Jervase

ayatci@yahoo.com

Dr David Tibbutt

david@tibbutt.co.uk

Prof. John Adwok

jadwok52@gmail.com

Dr Charles Ochero Cornelio Langoya

ocherology@yahoo.com

EDITORIAL ADVISOR

Ann Burgess

annpatriciaburgess@yahoo.co.uk

DESIGN AND LAYOUT

Dr Edward Eremugo Luka

The *South Sudan Medical Journal* is a quarterly publication intended for Healthcare Professionals, both those working in the South Sudan and those in other parts of the world seeking information on health in South Sudan. The Journal is published in mid-February, May, August and November.

Dr Tedros Adhanom: New WHO Director General

The 69th World Health Assembly elected Dr Tedros Adhanom Ghebreyesus of Ethiopia, as the 8th Director General of the World Health Organization (WHO) on May 24th 2017. He succeeded Dr Margaret Chan, who held the position for the last ten years (two terms), at the helm of the world's top health agency. When he assumed office on July 1st, 2017, for the start of his five-years term, Dr Tedros became the first African to hold this position.

Dr Tedros emerged as the front runner in the tightly contested race, beating five other candidates to the post. His accomplishments both in Ethiopia and the global stage catapult him to this remarkable success.

In Ethiopia, he served as the head of the Tigray Regional Health Bureau between 2001 -2003, during which he contributed to a 22.3% reduction in HIV/AIDS prevalence in the region and 68.5% reduction in Malaria. Under his leadership as the Federal Minister of Health period 2005-2008, the Ethiopian Ministry of Health challenged disease burden, poverty, poor infrastructure, and a declining global economic situation, to register significant progress in health indicators especially the Millennium Development Goals (MDGs). In his tenure, Ethiopia was considered by the United Nations as a "success story" in achieving the MDGs.

Dr Tedros moved to the global stage when, in November 2012, he was appointed the Minister of Foreign Affairs of Ethiopia, during which he demonstrated excellent leadership, negotiation, consensus building and conflict management skills. He served as the chair of the executive council of the African Union (AU) in 2014 and oversaw the AU adoption of its First Ten Year Implementation Plan for Agenda 2063 – a roadmap for achieving a prosperous Africa based on inclusive and sustainable growth, which has placed health as its focus and lynchpin.

The new WHO Director General has been very influential in different global health initiatives. He served as the Chair of the Roll Back Malaria Partnership from 2007 – 2009, Board Chair of Global Fund to fight AIDS, Tuberculosis and Malaria from 2009- 2011 and member of the Programme Coordinating Body for UNAIDS from 2009 – 2010, among others.

Named as one of the 50 people who will change the world in 2012, and one of the most influential Africans for the year 2015, Dr Tedros many professional awards, notably, the Jimmy and Rosalynn Carter Humanitarian Award conferred by the US National Foundation of Infectious Diseases in 2011 and the Women Deliver Award for Perseverance for his tireless efforts to improve the lives of women and girls at the fourth Women Deliver Conference on May 19, 2016.

Dr Tedros' relationship with South Sudan is well established. As the Minister of Health, he initiated the collaboration between South Sudan and Ethiopia which resulted in many health officials exchange visits as well as the postgraduate medical training for South Sudanese professionals in Ethiopian universities. Diplomatically, as a minister of foreign affairs, he was a key player in Ethiopia's strategic regional interventions and mediation particularly in South Sudan, Sudan and Somalia.

Dr Tedros is a change agent, and a reformist in the health sector. His election as the Director General of WHO brings along a lot of expectations for a better health agenda in a challenging time of extraordinary health threats, outbreaks, pandemics, antibiotic-resistant infections, scientific trials and breakthroughs, climate change, and the unique situation for the heavy burdened third world countries which necessitates exceptional visionary leadership, unprecedented and possibly innovative approaches in order to appropriately address their health and related needs.

The SSMJ wishes Dr Tedros well in his new assignment.

Dr Ayat C Jervase

SSMJ Editorial Board Member, and

Resident Registrar of Family Medicine, the Academy Charity Hospital,
University of Medical Sciences and Technology, Khartoum, Sudan

Email: ayatcj@yahoo.com



Eye diseases in Akon Payam, South Sudan

Kenneth Lado L Sube^a, Joseph Monday Lawrence^a, Richard Lado L Loro^b, Anthony Y Lasuba^a, Oromo Francis Seriano^a and Almutez Gharaibeh^c

a. College of Medicine, University of Juba, South Sudan.

b. Directorate of planning, policy and Research, National Ministry of Health, South Sudan.

c. Faculty of Medicine, University of Jordan.

Correspondence: Kenneth Lado L Sube kennethsube@yahoo.com

Objectives: To determine the prevalence and causes of blindness and visual impairment among patients in Akon payam, Warrap State, South Sudan.

Methods and materials: This was a cross-sectional study of 862 patients conducted at Akon in the period 18 – 31 September 2015. The Snellen E chart was used to measure visual acuity, and all patients had a basic eye examination. Their vision status was categorized according to the World Health Organization classification. Data were entered and analyzed using SPSS version 22 (IBM).

Results: The age range of the study population was 3 - 86 years; 81.9% were aged 41-80 years. 50.8% were males and 49.2% were females. There were 1483 bilaterally blind eyes giving a prevalence of blindness of 86% (95% CI: 3.2497-3.3531) with prevalence of visual impairment of 3.9 % (95% CI: 2.5001-3.0944).

Cataract (59.7%) was the commonest eye disease, followed by glaucoma (15.1%), corneal dystrophy (9.3%), allergic conjunctivitis (5.5%), corneal scar (1.9%), refractive errors (1.8%) and others (6.7%). Among those who are blind cataract (66%) was the major agent with females affected more than males. It was followed by glaucoma (16.7%), corneal dystrophy (10%), corneal scar(1.8%) and the rest of agents (5.4%). The main age group affected by blindness was the 41- 80 years age group (87%) and the least was below 20 years (1.1%). There was a strong association between age and sex with the causes of blindness.

Conclusion: There was equal sex preponderance with more blindness in 41 years or above. Cataract and glaucoma still remained major cause of blindness in this payam. More effort is needed by the government to reduce the burden of these diseases.

Key words: cataract, glaucoma, Akon payam, blindness, eye diseases.

Introduction

Globally, the patterns of eye diseases differ from one region to another and within communities. These variations are influenced by their demographic data, life style, socioeconomic status, etc. Such patterns of eye diseases are important since some can lead to ocular morbidity while others can cause blindness [1]. The common eye diseases include: cataract, glaucoma, conjunctivitis, corneal ulcers, uveitis, refractive errors, and pterygium [2].

The World Health Organization (WHO) estimates that the number of people with visual impairment worldwide in 2002 was over 161 million, of whom about 37 million (23%) were blind [3]. If there are no proper and efficient eye care services, this will result by 2020 in 76 million being blind. More than 90% of the world's visually impaired live in developing countries which includes South Sudan [4]. The majority are in rural areas. It is estimated that 75% of visual impairment is preventable and treatable [5]. This can be achieved through the WHO programme for the Prevention of Blindness "VISION 2020: The Right to Sight Initiative" whose objective is to eliminate avoidable

blindness by the year 2020 [6]. This initiative advocates eye outreach programmes as one way of achieving the vision 2020 target. Hence bringing eye care services to the rural areas through outreach programmes will help to reduce avoidable blindness since the prevalence of blindness and visual impairment is higher among those living in rural areas compared to those in urban areas [7].

The aim of this study is to determine the pattern of eye diseases seen at an eye outreach programme in Akon payam, Warrap State. This will help to obtain baseline data that can be used to design and plan community-based eye care services in rural areas in the state.

Materials and methods

The cross-sectional study was conducted in Akon payam in Warrap State in the Egyptian Hospital over a period of 2 weeks from 18 – 30 September 2015. All age groups with eye problems attending the eye clinic.

The sample size was based on all patients who presented to the Egyptian Hospital with eye problems within the study period.

The study team comprised of 2 ophthalmologists, 2 cataract surgeons, 2 ophthalmic clinical officers, 2 ophthalmic nurses, 2 clerks and 1 coordinator.

Basic eye examination

- Visual acuity (VA) was measured using the Snellen E chart at 6 m in adequate daylight. In patients with vision less than 6/60, VA was evaluated with the Snellen chart at 3m. Those with visual acuity less than 3/60 were assessed with finger counting, hand motion or light perception depending on the patient vision. Patients whose vision was less than 6/18 were subjected to the pinhole test. After VA testing, basic eye examination was done using a torch and a magnifying binocular loupe. Direct ophthalmoscope was used to examine the posterior segment of the eye after pupil dilatation. Diagnosis of glaucoma was based on optic disc cupping. Diagnosis was then made by each examiner. The WHO classification of visual acuity was used [5].
- Blindness was defined as Visual Acuity less than 3/60 in the better eye, Severe visual impairment as VA less than 6/60-3/60 in better eye, Visual impairment as VA <6/18-6/60 in better eye. Normal was defined as vision of 6/18 or better

Data were recorded on a customized form and patients with medical treatable conditions were issued with medications. Patients with surgical conditions (cataract and trichiasis) were booked and operated on the following day.

Statistical Analysis

Data were double entered and analyzed using SPSS version 22 (Statistical Package for the Social Sciences, IBM). Simple frequency analysis, means, standard deviation (SD), and percentages were calculated. Chi-squared test was used to determine the level of statistical significance for categorical variables. The level of significance was set at $P < 0.05$.

Ethical Considerations

Ethical approval was issued by the South Sudan National Ministry of Health (SSNMH).

Results

The studied population was 862 patients (1724 eyes). The age range was 3 to 86 years with a mean of 55.3 ± 15.0 . There were 438 (50.8%) males and 424 (49.2%) females in the ratio of 1:1.03 (Table 1). The majority 706 (81.9%) were aged 41-80 years (95%CI: 0.4074-0.5072) (Table 1). There were 1483 bilaterally blind eyes giving a prevalence of blindness of 86% (95% CI: 3.2497-3.3531) with prevalence of visual impairment of 3.9 % (95% CI: 2.5001-3.0944) (Table 2).

Table 1. Age and sex distribution among patients with eye disease

Age (years)	Sex		Total	95% CI
	Male	Female		
0-20	11	13	24	0.3267-0.7566
21-40	48	74	122	0.5186-0.6945
41-60	154	244	398	0.5650-0.6611
61-80	213	92	308	0.2498-0.3534
81-100	12	1	13	0.0907-0.2445
Total	438	424	862	0.4584-0.5253

P value = 0.000

Table 2. Frequency and percentage distribution of VA among patients

VA	Both eyes n (%)	95% CI
<3/60	1483(86)	3.2497-3.3532
<6/60-3/60	38(2.2)	2.7986-3.3435
<6/18-6/60	66(3.8)	2.5000-3.8944
=or>6/18	137(7.9)	1.4614-2.3446
	1724(100)	

Table 3. Frequency and percentage distribution of common eye diseases among patients

Disease	Total		95% CI
	n	%	
Cataract	1030	59.7	3.23935-3.35865
Glaucoma	260	15.1	3.11555-3.3691
Corneal Dystrophy	160	9.3	3.2881-3.6119
Allergic Conjunctivitis	95	5.5	1.8166-2.28845
Corneal Scar	32	1.9	2.7539-3.7461
Refractive Error	31	1.8	2.2187-3.2063
Others	116	6.7	2.2138-3.2354
Total	1724	100	

P value = 0.000

Cataract (59.7%) was the commonest eye disease, followed by glaucoma (15.1%) (Table 3).

Among those who were blind, cataract (66%) was the major cause (Table 4). Females were affected more than males ($p = 0.000$.) Glaucoma (16.7%) was the second followed by corneal dystrophy (9.3%). The main group contributing to blindness was aged 41 - 80 years (87%) and the least was aged below 20 years (1.1%) (Table 5).

Table 4. Distribution of causes of blindness among patients with VA <3/60 in the better eye

	Male n (%)	Female n (%)	Total n (%)
Cataract	457(62.3)	523(69.8)	980(66.1)
Glaucoma	126(17.2)	122(16.3)	248(16.7)
Corneal Dystrophy	95(12.9)	54(7.2)	149(10.0)
Allergic Conjunctivitis	2(0.3)	0(0.0)	2(0.1)
Corneal Opacity	5(0.7)	3(0.4)	8(0.5)
Trichiasis	2(0.3)	4(0.5)	6(0.4)
Refractive Error	3(0.4)	3(0.4)	6(0.4)
Phthisis Bulbi	2(0.3)	5(0.7)	7(0.5)
Leukoma	1(0.1)	3(0.4)	4(0.3)
Corneal Scar	19(2.6)	7(0.9)	26(1.8)
Pterygium	1(0.1)	2(0.3)	3(0.2)
Maculopathy	1(0.1)	4(0.5)	5(0.3)
Optic Atrophy	4(0.5)	0(0.0)	4(0.3)
Keratitis	1(0.1)	5(0.7)	6(0.4)
Anterior Staphyloma	6(0.8)	4(0.5)	10(0.7)
Ruptured Globe	0(0.0)	1(0.1)	1(0.1)
*Others	9(1.2)	9(1.2)	18(1.2)
Total	734(100)	749(100)	1483(100)

*Others: vitamin deficiency, foreign body in cornea, blepharitis and dryness

Table 5. Frequency and percentage distribution of age groups among patients with VA <3/60 in both eyes.

Age group (years)	Male n (%)	Female n (%)	Total n (%)
0-20	6(0.8)	10(1.3)	16(1.1)
40-21	45(6.1)	108(14.4)	153(10.3)
60-41	253(34.5)	453(60.5)	706(47.6)
80-61	408(55.6)	176(23.5)	584(39.4)
100-81	22(3.0)	2(0.3)	24(1.6)
Total	734(100)	749(100)	1483(100)

Discussion

Outreaches play a very essential role in reduction of avoidable blindness in rural areas where there are poor or absent eye care services.

Most outreach services are conducted and sponsored by non-governmental organizations and Faith-based organizations in South Sudan. To sustain such programmes, the government should get involved. This

is the first outreach ever funded by the government and implemented by government eye health workers. Furthermore this is the first outreach done in Akon payam.

In this study, almost equal number of males and females attended the outreach programme. This was similar to studies conducted in Ethiopia [8] and Nepal [9]. Other studies in Nepal [10] and Nigeria [11] showed a female preponderance. These differences may be due to variation in response to attendance at outreaches, transport, culture attitude, environment and socio economic factors. In this study, eye care services were brought to the community and therefore most of the barriers that reduce the uptake of health to females were either eliminated or reduced. Hence females were competing equally with males.

The prevalence of blindness in this study was 86%. This was the highest in the world as well as in a previous study done in 2005 in South Sudan [12]. This is because our study was an outreach programme in which those who attended were having symptomatic ocular problems with largest percentage contributed by cataract and glaucoma (82.7%). Most, if not all of the prevalence of blindness was obtained from eye surveys. Furthermore, this was an area where eye care services had never being implemented before.

Cataract and glaucoma were the main cause of blindness as well as commonest eye diseases. These results were similar to study done in Nigeria [14]. The 2005 South Sudan survey [12] showed cataract and trachoma to be the commonest. This disparity was due to variation in disease patterns within the communities. Our study showed cataract to still be a major health burden. The government needs to scale up cataract surgical camps across the whole country. South Sudan remains the least successful country in attaining the targets of vision 2020.

The glaucoma screening programme needs to be scaled up for early detection and treatment before it reaches a worse stage. There is a need to increase training of middle ophthalmic cadres for each state, and to expand and integrate eye care services into primary health care programmes. This will help in screening, early detection, treatment and referral of glaucoma cases to centers where there are ophthalmologists.

Ocular corneal dystrophies were the third commonest eye diseases. This is different from most of the studies done in Nigeria [11, 15] and Ethiopia [8] where refractive error is the third commonest eye disease. Our clinic impression is that climatic droplet keratopathy and corneal dystrophy are very common among cattle keeping communities in South Sudan. Environment and genetics may have played a big role. More studies, in form of surveys, need to be carried out in this area in order to justify this uniqueness.

Refractive error was still common. This is a very important eye disease whose prevalence varies globally. It is dependent on the race, culture, environment, genetics, etc. Regular screening and immediate correction of refractive error plays a big role in its management. South Sudan is deficient in refractionists. An immediate training programme needs to be initiated to produce a sizable number of refractionists for each state backed by availability of equipment for refraction. This will assist in reducing refractive errors in the communities as well as preventing amblyopia among children.

Allergic conjunctivitis was the fourth common eye disease. This was similar to one study done in Nigeria [11] but another Nigerian one [13] showed that allergic conjunctivitis was the commonest eye disease. Therefore, within the same country, variability of disease pattern can occur.

Conclusion

Cataract and glaucoma contributed to 75% of the eye diseases in this community. More attention is needed by the state Ministry of Health to provide eye care services in order to improve eye status in Akon payam and elsewhere in the state. The priority of the Ministry should be to reduce the burden of these eye diseases since cataract is treatable and blindness from glaucoma can be prevented or delayed by early detection and treatment. Frequent and regular outreaches need to be conducted.

Financial support: We thank the SSNHM for the financial support and sponsorship of this outreach programme.

Conflict of interest: There are no conflicts of interest.

Acknowledgement: We thank the Akon outreach programme team for their tolerance, cooperation, patience and commitment in making this programme successful. We appreciate the role played by the payam executive director and his team for making it easier for us to carry our activities in Akon Egyptian Hospital.

References

- Pi LH, Lin Chen L, Liu Q, NingKe N, Fang J, Zhang S, et al. Prevalence of eye diseases and causes of visual impairment in school-aged children in western China. *J Epidemiol* 2012; 22:37-44. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3798578/pdf/je-22-037.pdf>
- Ukponmwan, C.U. 2013. Pattern of Ocular Morbidity in Nigeria. *Asian Pacific Journal of Tropical Disease*, 3, 164- 166. [http://www.scirp.org/\(S\(351jmbntvnsjt1aadkposzje\)\)/reference/ReferencesPapers.aspx?ReferenceID=1859972](http://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?ReferenceID=1859972). Accessed 10/November/2016
- Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, et al. 2004. Global data on visual impairment in the year 2002. *Bull World Health Organ* 82: 844–851. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2623053/pdf/15640920.pdf>. Accessed on 10 November 2016.
- Thylefors B. 1987 A simplified methodology for the assessment of blindness and its main causes. *World Health Stat Q* 40: 129–141. <http://www.uniteforsight.org/global-impact-lab/tonypamphlet.pdf>
- World Health Organization: Visual impairment and blindness. Fact Sheet N°282. Updated August 2014. <http://www.who.int/mediacentre/factsheets/fs282/en/>. Accessed 10 November 2016.
- Resnikoff S, Pascolini D, Mariotti SP, Pokharel GP. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bull World Health Organization*. <http://www.who.int/bulletin/volumes/86/1/07-041210/en/>. Accessed on 10 November 2016.
- Jadoon MZ, Dineen B, Bourne RR, Shah SP, Khan MA, Johnson GJ, et al. Prevalence of blindness and visual impairment in Pakistan: The Pakistan national blindness and visual impairment survey. *Invest Ophthalmol Vis Sci* 2006; 47:4749-55. <http://iovs.arvojournals.org/pdfaccess.ashx?url=/data/Journals/IOVS/932936> on 11/10/2016
- Mehari Z A. A study of ocular morbidity of patients attending ophthalmic outreach services in rural Ethiopia. *International Journal of Medicine and Medical Sciences* Vol. 3 (4), pp. 450-454, June, 2013.
- RMKC, AleJB, Singh SK. Pattern of blindness in Mechi: A hospital based study in Mechi Eye Care centre. *J Nepal Med Assoc* 1998; 37:422-426.
- Rizyal A, Shakya S, Shrestha RK, Shrestha S. A study of ocular morbidity of patients attending a satellite clinic in Bhaktapur, Nepal. *Nepal Med Coll J* 2010; 12:87-9.
- Monsudi KF, Saka ES, Azonobi RI. Pattern of eye diseases presents at free outreach in rural community in the Northwestern Nigeria. *Sudan Med Monit* 2015; 10:113-6
- Ngondi J, Ole-Sempele F, Onsarigo A, Matende I, Baba S, et al. (2006) Prevalence and causes of blindness and low vision in southern Sudan. *PLoS Med* 3(12): e477.
- Hassan, et al.: Pattern of presentation at a free eye clinic. *Nigerian Journal of Clinical Practice*. Apr-Jun 2013, Vol 16, Issue 2. <http://www.njconline.com> Assessed October 28, 2016
- Mahmoud AO, Olatunji FO, BuariSB, SanniH. Survey of blindness and ocular morbidities in Kwara State, Nigeria. *Niger J Surg Sci* 2005; 15:26-31.
- Chukwuka IO, Pedro-Egbe CN, Onua AA. Ocular problems among public service retirees in a Southern Nigerian Metropolitan City. *Niger J Ophthalmol* 2016; 24:16-9.

Mothers' knowledge on essential newborn care at Juba Teaching Hospital, South Sudan

Lucy A Meseka^a, Lucy W Mungai^b and Rachael Musoke^c

a Department of Paediatrics and Child Health University of Nairobi

b Senior lecturer/Paediatric Endocrinologist, Department of Paediatrics and Child Health, University of Nairobi.

c Professor, Department of Paediatrics and Child Health, University of Nairobi.

Correspondence: Lucy Meseka cobiemeseka82@gmail.com

Introduction: Globally neonatal mortality remains high and in South Sudan is estimated at 52/1000 live births.

Objective: To identify the gaps in the knowledge and practices of essential newborn care among postnatal mothers at Juba Teaching Hospital and to determine the socio-demographic factors that influenced these.

Methodology: A hospital-based cross-sectional study among 384 postnatal mothers using consecutive sampling, a pretested questionnaire to assess knowledge and a three point Likert scale to find out to which practices mothers did, or did not, agree.

Results: 45% of mothers were aged between 25-34 years; 23.9% had some secondary school education; 70% were multiparous and 82% had attended an antenatal care clinic. 90% knew about breastfeeding on demand and 74% about exclusive breastfeeding. Only 18.2% of mothers knew the cord should be cared for while uncovered; 90% used warm clothing and 33% kangaroo care for thermoregulation. Only 20.8% identified BCG and OPV as birth vaccines; 3.4% believed vaccines were harmful. Hypothermia was the danger sign least frequently identified by the mothers (41.4%).

Conclusion: Adequate knowledge was found regarding breastfeeding with knowledge gaps existing in cord care, immunization, eye care and thermoregulation. Positive practice was found concerning breastfeeding, cord care, eye care and immunization. Socio-demographic factors were not found to be associated with maternal knowledge on newborn care.

Key Words: Essential newborn care, Immunization, South Sudan

Introduction

It is estimated that globally neonatal mortality contributes to 45% of under-five deaths [1], the leading cause being prematurity. Up to two thirds of these deaths could be prevented by practising effective measures at birth and during the first week of life. Most deaths occur in the first 24 hours of life [2]. In South Sudan the neonatal mortality was estimated at 52/1000 live births in 2010 [3] and 39/1000 live births in 2013 [4].

'Essential newborn care' is a set of recommendations from World Health Organization (WHO) [5] designed to improve the health of the newborns through interventions pre-conception, during pregnancy, and postnatally. It includes thermoregulation, clean delivery and cord care, initiation of breastfeeding, immunization, eye care, recognition of danger signs, care of the preterm / low birth weight infant and management of newborn illnesses.

This study aimed to identify the gaps in the knowledge and practices towards essential newborn care among postnatal mothers at Juba Teaching Hospital and to determine the associated socio-demographic factors.

Methodology

A cross-sectional descriptive study was conducted from November 1st to December 15th 2015 among postnatal mothers with term neonates admitted in the postnatal wards at Juba Teaching Hospital.

Consecutive sampling was used to select 384 informed and consenting mothers from the medical records. Information on mothers' socio-demographic status, antenatal and birth history and knowledge of WHO essential newborn care practices was collected on a pretested questionnaire and assessed on a three-point Likert scale (agree, neutral and disagree).

Statistical testing was done using Chi square tests to compare dependent and explanatory variables related to responses to practices.

Data were analysed using STATA version 12.0 software. Scoring systems was used to analyse maternal knowledge. The level of knowledge was cross tabulated against the maternal variables. The variables that were significantly associated with poor knowledge at bivariate analysis were analysed further using multivariate logistic regression to determine the independent factors associated with poor knowledge.

Kenyatta National Hospital, University of Nairobi

Table 1. Maternal Socio-Demographic characteristics

Variables	Frequency (n)	Percent (%)
Maternal age - years		
18-16	25	6.5
25-19	134	35
34-25		45.2
45-35	51	13.3
Marital status		
Married	255	66.4
Unmarried	129	33.6
Mother's occupation		
Employed	157	40.9
Unemployed	227	59.1
Mother's education		
No formal education	62	16.2
Some primary education	68	17.7
Complete primary education	54	14.1
Some secondary education	92	23.9
Complete secondary education	63	16.4
Tertiary	45	11.7
Mother's religious beliefs		
Christian	333	86.7
Islam	51	13.3

Ethics and Research Committee and the Directorate of Research and Planning, Ministry of Health, Republic of South Sudan gave ethical approval.

Consent forms were signed by all mothers, after an explanation of the study and the voluntary nature of participation. Confidentiality was guaranteed.

Results

Maternal socio-demographic characteristics

The mean age of the mothers was 26.2 years (SD± 6.3) and of the fathers 32.7 years (range 20 – 60 years SD ±6.9). The mothers' marital, educational and employment status, and religious beliefs are shown on Table 1.

Education on newborn care

82% of the mothers had attended an antenatal care (ANC) clinic. The median gestational age at first ANC visit was 3 months. Education on newborn care was provided (mostly by nurses and midwives) to 63.5% of mothers during the antenatal period and to 55% in the

Table 2. Education on newborn care

Variable	During pregnancy n (%)	After delivery n (%)
Education on newborn care		
Yes	244 (63.5%)	210 (55%)
No	140 (36.5%)	174 (45%)
Information provided by:		
Doctor	12 (5 %)	20 (10%)
Nurse/midwives	232 (95%)	156 (74%)
Family/friends	0 (0.0%)	34 (16%)
Essential newborn care information received:		
Cord care	232 (60.4 %)	207 (53.9%)
Thermoregulation	180 (46.9%)	193 (50.3%)
Breastfeeding	235 (61.2%)	209 (54.4%)
Immunization	210 (54.7%)	205 (53.1%)
Eye care	165 (42.9%)	193 (50.3%)
Signs of serious illness in newborn	219 (57%)	199 (51.8%)

postnatal period. Table 2 shows the variation in education on different topics of newborn care given in the ante- and post-natal periods.

Knowledge on essential newborn care - see Table 3.

Only 18.2% of mothers correctly answered that the umbilical stump should be uncovered; 37.8% said (incorrectly) that substances could be applied to the umbilical stump after cleaning. Of these 43% said powder, 14.4% ashes, 2.8% oil and 2.8% alcohol. The modes of thermoregulation identified by the mothers were the use of warm clothing and rooming-in (90.4% and 85.2% respectively).

The majority of mothers knew that babies should be given colostrum; feed on-demand; breastfed exclusively for 6 months, and not given prelacteal feeds. Mothers' knowledge of signs of eye infection were eye discharge 97.4%, red eyes 66.9% and swollen eyes 36.7%. Almost all mothers (94.3%) recognised fever as a sign of serious illness but only 41.1% recognised hypothermia as a sign.

Practices on essential newborn care

Table 4 shows the proportion of mothers agreeing or disagreeing to various statements about practices of essential newborn care.

Factors associated with maternal knowledge on essential newborn care

A multivariable logistic regression model was used to examine the null hypothesis of no association between

Table 3. Mothers' answers to closed questions on newborn cord care cleanliness and thermoregulation

Cord care and cleanliness	Frequency (n)	Percent (%)
Umbilicus stump should be:		
-Covered	295	76.8
-Uncovered	70	18.2
-Don't know	14	3.6
Soiled umbilicus stump should be:		
-Clean with water	289	75.3
-Clean with saliva	0	0
-Apply alcohol or spirit	95	24.7
The cord should be left clean and dry without applying substance:		
-Yes	208	54.1
-No	145	37.8
-Don't know	31	8.1
Baby is kept warm after delivery by:		
-Skin to skin contact	128	33.3
-Wrapping baby in a cloth	347	90.4
Duration between birth and first bath:		
-Hours	169	44.1
-Days	188	49.1
-Don't know	26	6.8
Baby should be nursed in the same room as mother		
-Yes	327	85.2
-No	28	7.3
-Don't know	29	7.6

various maternal characteristics (Table 5). Maternal knowledge was significantly associated with information received from a provider during ANC ($p = 0.036$) and post-delivery ($p < 0.001$). Mothers who received information during ANC were significantly more likely to have adequate knowledge compared to those who reported to not having information from a health care provider $p = 0.034$.

Discussion

To reduce neonatal morbidity and mortality mothers needed to be equipped with correct knowledge on essential newborn care practices. The essential newborn care components studied were cord care, thermoregulation, breastfeeding immunization, eye care and signs of serious

Table 4. Mothers' responses to recommended practices for essential newborn care

	Agree n (%)	Neutral n (%)	Disagree n (%)
Cleanliness and cord care			
A previously used razor blade can be washed and used to cut the cord	50(13.1)	7(1.8)	326(85.1)
A dirty umbilical cord can cause infection in your baby	316(82.3)	57(14.8)	11(2.9)
Thermoregulation			
Babies can be covered with clothes to prevent heat loss	373(97.1)	3(0.8)	8(2.1)
Mother-baby skin-to-skin contact prevents the baby from getting cold	218(56.8)	140(36.5)	26(6.8)
The baby can be bathed within the first day of life	159(41.4)	50(13.0)	175(45.6)
Breastfeeding			
The baby should be breastfed at night	349(91.1)	4(1.0)	30(7.8)
Mixed feeds should not be practiced	320(83.3)	24(6.3)	40(10.4)
Eye care			
Substances (apart from those prescribed by doctor) can be applied to infected eye	77(20.1)	34(8.9)	273(71.1)

illness in newborn. Our study revealed that majority of the mothers had inadequate knowledge on cord care, which were inconsistent with the study in Kenyatta National Hospital which found that the mothers had adequate knowledge on cord care [6]. The variation in the views among mothers was likely due to lack of consensus among health care providers on the best practices of cord care.

Breastfeeding knowledge among mothers was encouraging with most mothers aware of breastfeeding on demand (90.1%), use of colostrum (83%) and exclusive breastfeeding (74%). These findings suggest great emphasis by health care providers on breastfeeding during antenatal care. All pregnant women should attend ANC at the earliest time possible.

Awareness among mothers of the need for vaccine at birth and its benefits was high (91.7%), which is pushed aggressively through the expanded programme on immunization (EPI) in the country. Mothers were less aware of kangaroo (skin to skin contact) as a method of thermoregulation for the newborns and this was due to inadequate dissemination of information on thermoregulation by the health care providers during both antenatal and postnatal periods. The study also found that more than half of the mothers had poor knowledge of practices of cord care; this finding was consistent with Monebenimp et al in Cameroon who also reported that more than half of the mothers had negative practices towards cord care [7].

Our study found that mothers' knowledge of good practices towards breastfeeding were different from those of Rehana et al who found 73% of Pakistani mothers had given prelacteal feeds and exclusive breastfeeding rate was 26% [8].

Conclusions

1. Postnatal mothers were most knowledgeable about breastfeeding and signs of serious illness and least knowledgeable about cord care, eye care, thermoregulation and immunization.
2. Postnatal mothers had a positive knowledge of the good practices towards cord care, breastfeeding, eye care, immunization with negative practice towards thermoregulation.
3. Socio-demographic factors were not associated with inadequate maternal knowledge.

Recommendations

1. Essential newborn care information should be provided to mothers during both the antenatal and postnatal periods.
2. More maternal education is needed during antenatal care on cord care, eye care, thermoregulation and immunization.
3. More health awareness campaigns on essential newborn care are required for the mothers to improve maternal knowledge and practice.

References

1. World Health Organization, Neonatal Mortality, Fact Sheet No 333. Available from: <http://www.who.int/mediacentre/factsheets/fs333en/> / Last accessed April 2016

Table 5. Multivariable logistic regression of factors associated with maternal knowledge on essential newborn care.

	Odds Ratio	P Value	95% CI	
Employment status				
Employed	1.0 (ref)			
Unemployed	0.62	0.064	0.37	1.03
Parity				
Primigravid				
Multiparous	2.13	0.013	1.17	3.86
Number of ANC visits				
< 4 visits				
4 or more visits	3.76	0.347	0.24	59.53
Attendance of ANC				
Yes	1.0 (ref)			
No	2.06	0.589	0.15	28.62
Provided information during ANC				
Yes				
No	2.55	0.009	1.26	5.17
Receive information after delivery				
Yes				
No	3.13	<0.001	1.83	5.33

2. Katie M, Where we have been and where we need to go? Lancet, May 2014 Available from: <https://www.mhfrf.org/2014/05/lancet-launches-every-newborn-series-where-weve-and-where-we-need-to-go/> Last accessed April 2016
3. Ministry of Health, South Sudan Household Survey of 2010, August 2013 Accessed April 2016 <http://static1.1.sqspcdn.com/static/f/750842/25554023/1413444076180/SS+HHS+2010+Final+2010+Report.pdf?token=YkhogtKPjsGXxEZXdeOP2xmxOTE%3D>
4. WHO/UNICEF/WORLD BANK/United Nations Population Division. Level of trends in child health mortality, South Sudan Report 2013. Available from www.who.int/maternal_child_adolescents/countries/indicators/dashboards/en/southsudan Last accessed May 2016
5. World Health Organization Neonatal Mortality, Situation and trends 2013. Available from: http://www.who.int/gho/child_health/mortality/neonatal_text/en/
6. Amolo L. Knowledge and Attitude of Postnatal Mothers on Essential Newborn Care Practices at Kenyatta National Hospital. MB.Ch.B UON 2014.
7. Monebenimp F, Mongo ME, Chelo D et al. Mothers Knowledge and Practice on Essential Newborn Care, Cameroon. *Health Sciences and Diseases*. 2013 Aug 7; 14(2).
8. Gul S, Khalil R, Shoukat F et al. Newborn Care Knowledge and Practices among mothers in Pakistan. *International Journal of Health Sciences Qassim* 2014.(2):167-75

Associated anomalies in cleft lip and palate: analysis of 811 consecutive patients

Adesina O A^a, Efunkoya A A^b, Olaitan A^c, Adesina O O^d

a Department of Oral & Maxillofacial Unit, University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria.

b Department of Oral & Maxillofacial Unit, Aminu Kano Teaching Hospital, Kano State, Nigeria.

c Department of Oral and Maxillofacial Surgery, Lagos State University Teaching Hospital, Lagos State, Nigeria.

d Department of Medical Laboratory Science, College of Medical Science, University of Maiduguri, Borno State, Nigeria.

Correspondence to: Dr Akinwale A Efunkoya akinefunks@yahoo.com

Introduction: Clefts are common birth defects and may be associated with oro-facial congenital anomalies. It has not been established if specific types of anomalies are frequently related with clefts, or which organ is most commonly affected. This study aimed to assess the prevalence of associated anomalies in consecutive cleft lip and palate patients treated at two referral centres in Northern Nigeria.

Methods: Cleft lip and palate at two referral hospitals in Northern Nigeria from January 2012 to December 2015 were studied. Data were analysed using Statistical Package for Social Sciences (SPSS) version 16.

Results: A total of 811 cleft lip and palate patients were managed. Fifty-five percent (447) were male and 45% (364) were female while 71% (578) were children and 29% (233) were adults. The prevalence of associated anomalies was 11.5%. The most common associated anomaly among cleft patients was facial anomaly (64% of cleft patients). Associated anomalies were most prevalent in patients with isolated cleft palate. Hypertelorism was the commonest type of facial anomaly recorded.

Conclusion: Our study showed a low incidence of associated anomalies with a higher incidence in isolated cleft palate cases.

Key Words: Cleft lip, Cleft Palate, Associated Facial Anomaly, Congenital anomaly

Introduction

Oro-facial clefts are common birth defects in humans and may be associated with other congenital anomalies. The majority of these clefts are non-syndromic [1]. The incidence and the types of associated anomalies vary between different studies. However a frequency of 3% to 63% has been reported which is a reflection of varying data collection [2]. It has not been established if there are specific types of anomalies that are often related to cleft, or which organ is most commonly affected [3].

Establishing the presence of associated anomalies in patients with cleft is necessary for adequate screening and evaluating such patients, so that an appropriate treatment can be given [3]. It is also essential that every child should be thoroughly examined immediately after birth for associated anomalies, because children with severe malformation may not survive long [1]. There is little information on the frequency of associated anomalies in cleft in Africa. The aim of this study was to assess the prevalence of associated anomalies in a group of consecutive cleft lip and palate patients treated at two referral centres in Northern Nigeria.

Methodology

A retrospective study of all patients with cleft lip and palate managed at two referral hospitals (University of Maiduguri Teaching Hospital and Mercyland Specialist Hospital Maiduguri in Borno State in Northern Nigeria) under the SmileTrain project over a 4-year period (January 2012 to December 2015) was undertaken. The records of all patients with cleft were noted and analysed. Patients with syndromic cleft or incomplete data were excluded from the study.

Clefts were classified into 4 types: isolated unilateral cleft lip, bilateral cleft with or without palate, unilateral cleft lip and palate, isolated cleft palate. The associated congenital anomalies were classified according to the principal organ, system and/or area affected (facial, ocular, central nervous system, cardiovascular, auricular, upper and lower extremity, urogenital, and gastrointestinal). All the patients enrolled were reviewed by every cleft team member. The diagnosis of the associated anomalies was based on their expert opinions.

The evaluation of associated malformations was based on a thorough history, physical examination

and investigations which included haematological tests, biochemical tests, chest x-rays, two-dimensional echocardiogram, ultrasound scans and computed tomography as preliminary evaluation was deemed necessary. Patients' clinical information included age, gender, type of cleft, and presence of associated anomalies. Data were analyzed using SPSS version 16. A p-value less than 0.05 was considered significant. The study was approved by the Ethical Committees of the two hospitals.

Results

A total of 811 cleft patients were managed during the study period consisting of children 578 (71%) and adult 233 (29%). The gender distribution was 308 (38%) males and 268 (33%) females (M:F = 1.4:1).

Unilateral cleft lip with or without alveolus was the most frequent subtype (576 patients, 71%), followed by bilateral cleft lip with or without palate (123 patients, 15%). Table 1 shows the distribution of associated anomalies.

The most common associated anomaly among cleft patients was facial anomaly, in 64% of cleft patients, followed by ocular anomaly in 22%. See Figures 1 and 2.

The total number of associated anomalies was 93 (11.5%) with single anomaly recorded in each patient. There was a high occurrence of associated anomalies in isolated cleft palate patients where 6 patients (40%) out of the 15 cases, presented with associated anomalies, followed by patients with combined cleft lip and palate (16 out of 97 cases, 16.5%); the least number was recorded in bilateral cleft lip with or without palate patients with 11 (8.9%) out of 112 patients. There was a significant relationship between cleft deformity and associated anomalies ($P=0.001$). See Figure 3.

Among cleft patients with facial anomalies, 29 patients (49%) had hypertelorism followed by nasal deformity in 14 (24%). There was however no significant relationship between facial anomalies and cleft type ($P = 0.384$) - see Table 2. Table 3 revealed the most common ocular anomaly to be strabismus followed by exophthalmos. There was no significant relationship between cleft type and ocular anomalies ($P= 0.072$).

Discussion

A cleft lip or palate can be a single anomaly or a part of multiple congenital anomalies [1]. In general, most congenital anomalies can be divided into three types:

- Disruptions:** A rare anomaly related to breakdown of the original normal foetal developmental process, e.g. craniofacial cleft resulting from amniotic bands.
- Deformations:** These occur secondary to mechanical forces leading to anomalies of a lesser degree when compared to disruption, e.g. club foot, cleft palate, Pierre Robin sequence etc.
- Malformations:** A morphologic defect in an organ

Table 1. Distribution of associated anomalies among cleft patients

Site of Anomaly	CLA	BCLP	UCLP	ICP	Total (%)
Facial	38	6	12	3	59 (64)
Ocular	14	3	3	-	20 (22)
CNS	3	1	-	-	4 (4)
Lower extremities	3	1	-	-	4 (4)
Cardiovascular	-	-	-	2	2 (2)
Auricular	-	-	-	1	1 (1)
GIT	1	-	-	-	1 (1)
Upper extremities	1	-	-	-	1 (1)
Urogenital	-	-	1	-	1 (1)
Total	60	11	16	6	93 (100)

Key:

UCLA = Cleft Lip with/without Alveolar cleft

BCLP = Bilateral Cleft Lip with Cleft Palate

UCLP = Unilateral Cleft Lip with Cleft Palate

ICP = Isolated Cleft Palate

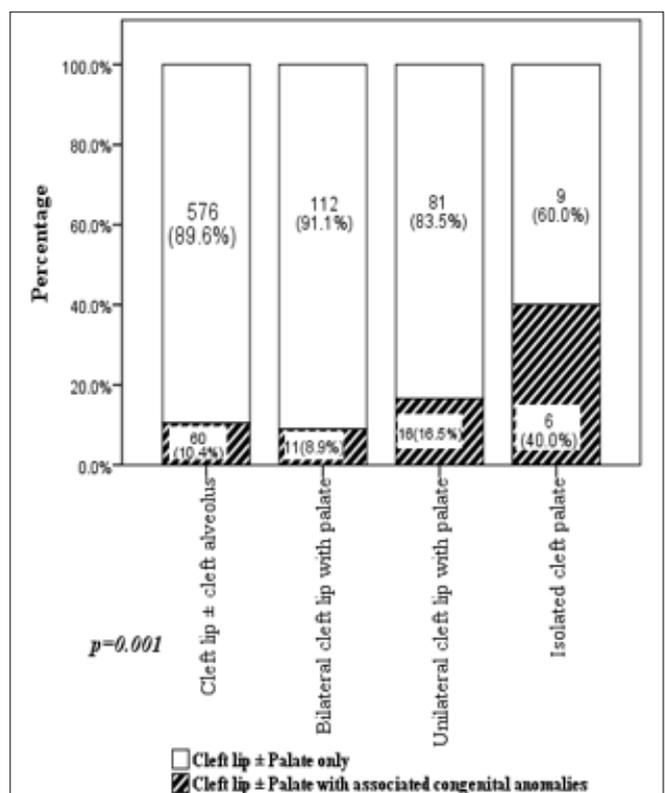


Figure 1. Bar chart showing association between cleft type and associated anomalies

Table 2. Cleft Type and Types of Facial Deformities

Type of Anomalies	CLA	BCLP	UCLP	ICP	Total (%)
Hypertelorism	21	2	5	1	29 (49)
Dysmorphic face	4	-	1	-	5 (8)
Nasal Deformities	6	3	4	1	14 (24)
Microcephally	-	-	1	-	1 (2)
Telecanthus	-	1	-	-	1 (2)
Macrocephally	4	-	-	1	5 (8)
Frontal bossing	2	-	1	-	3 (5)
Midfacial hypoplasia	1	-	-	-	1 (2)
Total	38	6	12	3	59 (100)

P-value = 0.384

Key: (See under table 1)

Table 3. Cleft Type and Types of Ocular Deformities

Ocular Deformities	CLA	BCLP	UCLP	ICP	Total (%)
Strabismus	5	-	2	-	7 (35)
Microphthalmia	1	-	-	-	1 (5)
Blindness	1	-	-	-	1 (5)
Cataract	4	-	-	-	4 (20)
Exophthalmous	3	2	1	-	6 (30)
Anophthalmia	-	1	-	-	1 (5)
Total	14	3	3	-	20 (100)

P=value= 0.072

Key: (See under table 1)

from an intrinsically abnormal developmental process, e.g. polydactyly, congenital heart anomalies, cleft lip [4].

However, with the present advancement in embryology and genetics, and its correlations, the associated anomalies need to be differentiated from syndromes, in patients with multiple congenital anomalies [4].

The reported prevalence of associated anomalies varies widely across the literature; generally a prevalence rate between 3% and 63% has been reported which is a reflection of varying data collection [2]. Our hospital-based study revealed a low rate of 11.5%, which is at variance with most hospital-based studies which are often higher than population studies. The reason for this is not known. Authors who have reviewed data from birth registries generally report lower incidences than authors who account for patients referred to their institutions [3]. Knocks and Braithwaite [5] in Northumberland reported in 1962 an incidence of 7.5%, whereas Greene

et al [6] in 1964 found that 15% of infants in the United States had other defects. A Sweden population-based study showed that 1% of patients with oral cleft had associated malformations that either required follow-up or treatment [3]. Rollnick and Pruzansky [7] observed other malformations in 44% of the reviewed children with clefts who were referred to the Centre for Genetics, Medical Centre, University of Illinois. An even higher incidence was reported by Shprintzen et al [8] who found that associated malformations were present in 63.4% of the children examined at SUNY Upstate Medical University, New York, USA. Population-based studies are believed to be more appropriate [1].

The wide variation in reports on prevalence of cleft deformity and associated anomalies is dependent on the diagnostic procedure used [9]. Another possible explanation for the variation has been a lack of agreement on what should be regarded as a congenital defect. Some other challenges other investigators have encountered are variation in the time of presentation of these cases after birth, level of knowledge of the investigators themselves and available technology, as well as variability in the clinical expressions of these associated anomalies [10]. In the two centres where our study was carried out, a team approach was adopted. Our team however lacks a genetist or a dysmorphologist.

There are also different reports in the literature as to which congenital malformations are most common in patients with cleft. Our study has shown a higher prevalence of associated anomalies in the head region with the most involvement being the face (64%) followed by the ocular region (22%). This is similar to the study of Shprintzen [8] who found most of the associated anomalies in the head and neck area. Whereas Stark [11] and Lilius [12] observed a dominance of malformations of the extremities. In a study in Sweden in 616 infants Josef et al. found cardiac anomalies as the most common associated anomaly [3]. It has however not been conclusively established whether clefts are related to specific types of congenital defects [8]. It is also not known whether the aetiology of the cleft deformity are same with that of the associated anomalies. However further genetic studies are important to be able to differentiate the aetiologies and pathogenesis of associated anomalies from cleft syndromes [2].

In our study we found that although the incidence of cleft was highest in isolated unilateral cleft lip, associated anomalies (28%) was highest in patients with isolated cleft palate. This is similar to that reported earlier by Stoll [9] and Natsume [13]. Josef et al. however reported a higher incidence of associated anomalies among patients with combined cleft lip and palate [3].

We recommend that doctors in Sub-Saharan Africa (and worldwide) dealing with cleft patients (often dental, facio-maxillary and plastic surgeons) request



Figure 2. A child with unilateral cleft lip and associated frontal bossing. Credit: Dr Adesina.



Figure 3. A child with unilateral cleft and associated bilateral congenital cataract. Credit: Dr Adesina (Consent given)

multidisciplinary evaluation of their patients for possible associated abnormalities therefore improving decision making in their management. Dealing with a severe congenital cardiac anomaly should take precedence over a simple repair of a cleft lip. This simple measure can prevent unnecessary morbidities and mortalities.

Conclusion

The prevalence of associated anomalies among orofacial cleft patients is low. Patients with isolated cleft palate appear to be at higher risk for associated anomalies.

We recommend a team approach when evaluating the patients with cleft. Future prospective studies on associated anomalies are also recommended.

Limitations: The present study was retrospective and as such was limited to the clinical records available to the researchers. There might have been a higher number of congenital anomalies seen in the period under review but we have presented what was available in patient's records.

Acknowledgement: Photographs of the children are published with permission of the parents.

References

1. Shahin AF, Nikzad S, and Alireza L. Prevalence of Associated Anomalies in Cleft Lip and/or Palate Patients, *Iran J Otorhinolaryngol*. 2016 Mar; 28(85): 135–139.
2. Sekhon, PS, Ethunandan M, Markus, A.F. Krishnan G, Bhasker Rao C., Congenital Anomalies Associated With Cleft Lip and Palate—An Analysis of 1623 Consecutive Patients Cleft Palate—Craniofacial Journal, 2011; 48 (4).
3. Josef M, Ola L, Catharina H, Margareta I. Associated Malformations in Infants with Cleft Lip and Palate: A Population-based Study. *Pediatrics* 1997; 100; 180.
4. Venkatesh R. Syndromes and anomalies associated with cleft. *Indian J Plast Surg*. 2009 Oct; 42(Suppl): S51–S55.
5. Knocks G, Braithwaite FL. Cleft lips and palates in Northumberland and Durham. *Arch Dis Child* 1962; 38:66–70.
6. Greene JC, Vermilion JR, Hay S, Gibbens SF, Kerschbaum S. Epidemiologic study of cleft lip and cleft palate in four states. *J Am Dent Assoc* 1964; 68:387 – 404.
7. Rollnick BR, Pruzansky S. Genetic services at a center for craniofacial anomalies. *Cleft Palate J* 1981; 18:304–313.
8. Shprintzen RJ, Siegel-Sadewitz VL, Amato J, Goldberg RB. Anomalies associated with cleft lip, cleft palate, or both. 1985; *Am J Med Genet* 20:585 – 595.
9. Stoll C, Alembik Y, Dott B, Roth MP. Epidemiological and genetic study in 207 cases of oral clefts in Alsace, north-eastern France. *J Med Genet*. 1991; 28(5):325–329.
10. Wyszynski DF, Sarkozi A, Czeizel AE. Oral clefts with associated anomalies issues. *Cleft methodological Palate, Craniofac J*. 2006; 43:1–6.
11. Stark RB. *Cleft Palate: A Multidiscipline Approach*. New York, NY: Harper & Row, Publishers; 1968:303.
12. Lilius DP. Clefts with associated anomalies and syndromes in Finland. *Scand J Reconstr Hand Surg* 1992; 26:185–196.
13. Natsume N, Niimi T, Furukawa H, Kawai T Ogi N, Suzuki Y, et al. Survey of congenital anomalies associated with cleft lip and/or palate in 701,181 Japanese people. *Oral Surg Oral Med Oral Radiol Endod*. 2001; 91 (2):157–61.

Further reading

Roberts RM; Mathias JL; Wheaton P. Cognitive Functioning in Children and Adults with Nonsyndromal Cleft Lip and/or Palate: A Meta-analysis. *Journal of Pediatric Psychology* 2012; 37(7):786-797.

Attitudes and beliefs about mental illness among relatives of patients with schizophrenia

Ajak Manguak Agau^a and Anne Bodilsen^b

^a National Institute of Health Sciences, Jonglei

^b Aarhus University Hospital, Denmark

Correspondence to: Ajak Manguak Agau, manguak1ajak@gmail.com

Background: Schizophrenia is a mental disease with inability to differentiate real from unreal. In many African cultures a traditional view on mental disease results in stigma, negative attitudes, and ignorance of the patient and their symptoms.

Objective: To explore the different attitudes and beliefs amongst relatives of patients having schizophrenia.

Method: Cross-sectional survey among relatives of patients with schizophrenia treated at Butabika Mental Hospital, Kampala, Uganda.

Results: A total of 44 were included. 30% believed schizophrenia to be a brain disease, 32% thought the cause was supernatural. The majority (80%) thought that schizophrenia can be treated and preferably in hospitals (91%); 66% felt the best way to reduce schizophrenia was to pray to God, and many stated that being with the patients (73%) or letting them be part of the community (80%) was good ways of helping the patients.

Conclusion: Beliefs about supernatural causes of schizophrenia and stigmatizing are still present in Uganda. However among participants many had positive attitude towards letting the patients be part of community. Education of the communities could be a way of improving the awareness of mental disorders and the role that the community play in recovery from mental illness.

Keywords: schizophrenia, mental illness, stigma, attitudes, beliefs

Introduction

Schizophrenia is a mental disorder characterized by abnormal social behaviour and failure to recognize reality. Symptoms include delusions, disordered thoughts and speech, hallucinations, poverty of speech, lack of ability to enjoy things, poor motivation, and lack of desire to form relationships [1].

The causes include genetic factors (8-10% risk if a first degree relative has schizophrenia), environmental, substance abuse, and socioeconomic.

Approximately 24 million people worldwide suffer from schizophrenia with a prevalence rate of 0.5-1% across racial and socioeconomic factors. The disease resulted in 20,000 deaths in 2010 due to neglect and lack of basic treatment [2]. Africa is a low resource continent with many predisposing factors such as substance abuse like khat and few diagnosing and treating facilities. The low number of specialists in the psychiatric field makes the diagnosis and treatment of mental diseases difficult.

Many African families have traditional views about schizophrenia resulting in stigmatisation and negative attitudes which may delay treatment and cause worse

outcomes [3,4]. These are passed down the generations in spite of available modern explanations [5].

The purpose of the study was to explore the different attitudes and beliefs among relatives of patients having schizophrenia.

Method

The research was conducted at Butabika Hospital, Kampala, Uganda. The study was cross-sectional using a 24-item self-administered questionnaire developed using items from the following:

- Questionnaire developed for the World Psychiatric Association Program to Reduce Stigma and Discrimination because of Schizophrenia [6]
- The Fear and Behavioral Intentions toward the mentally ill (FABI) questionnaire [7]
- The Community Attitudes to Mental Illness (CAMI) scale [8].

Participants were relatives of patients with schizophrenia aged 18 years or above, either accompanying the patient as an in-patient or out-patient.

Table 1. Socio-demographic characteristics of the participants

Characteristic	n	%
Total	44	100
Gender		
Male	19	43
Female	25	57
Age		
<20	5	11
40>-20	21	48
60>-40	12	27
≥60	6	14
Relationship to patient		
Parent	12	27
Sibling	11	25
Spouse	3	7
Son/daughter	10	23
Other	8	17
Education		
Primary	18	41
Secondary	19	43
Tertiary	7	16
Residence		
Rural	30	68
Town	14	32
Religion		
Christian	37	84
Muslim	5	11
Other	2	5

Chi-square tests were used to compare the answers based on sociodemographic characteristics. This was used to identify any significant differences in responses among men and women, between two educational levels (primary/secondary versus tertiary), and two different areas of living (rural and urban). The analysis was done using Stata version 12 and Microsoft excel.

Results

Forty-four relatives completed the questionnaire. Socio-demographic characteristics are presented in Table 1. The cause of schizophrenia was believed by participants to be: brain disease (30%), evil spirit (15%), drug/alcohol abuse (14%), witchcraft (11%), genetic (11%), poverty (9%), or a curse (6%).

Table 2 shows that 80% of the participants believed that treatment of schizophrenia is possible and 45% believed that it can be inherited but many (27%) were unsure and declared that they did not know. Over 90% believed that hospital is the best place for treatment, 5% believed in witch doctors, and 5% stated that church could be the best place for help. No one believed in going to traditional healers or ancestors. Table 2 sets out the various perceptions that schizophrenia arises as a punishment (43%), and also lists the “treatment” options e.g. praying (66%) to God. Tables 3 and 4 describes additional attitudes.

When asked how the family can help the patient the great majority (89%) suggested taking the patient to the hospital. A larger proportion (32%) suggested talking to the patients, while small numbers recommended isolation, discipline, and to lock in the patient.

Figures 1 and 2 show who the participants thought should care for the patient with the majority (in both education and location groups) thought it should be the family, followed by the government (particularly in rural areas). Smaller numbers answered ‘God’, or the patients themselves. None in the tertiary education group suggested that ‘God’

Discussion

This study has demonstrated different stigmatizing attitudes and beliefs among the relatives of schizophrenic patients attending hospital. It was found that a large proportion of the participants still endorsed culturally accepted causations of schizophrenia such as evil spirits, curses, and witchcraft. Compared with other studies in rural areas we found a lower percentage of participants believing in supernatural causes of schizophrenia [4,9,10]. Our results highlighted a variety of biological factors, supernatural causes, and alcohol and drug abuse.

Most participants believed that schizophrenia could be treated (80%) and that the best place for this is hospital (91%). But it must be re-emphasised that our patients were hospital based and may not reflect opinion in the out-of-hospital population. Certainly other studies in rural settings found that traditional methods such as consulting wise men or traditional healers were preferred over hospital treatment [9]. Nevertheless we still found a significant number in our study who thought that schizophrenia was a punishment.

The wealthier you are was considered by over half of the participants as a protection against schizophrenia; this may be related in some way to the level of education. Several other studies have found that traditional medicine and supernatural forces play a very important part in the beliefs about schizophrenia, also among health professionals [4, 11].

Table 2. Beliefs about schizophrenia

Beliefs	Gender			Education			Residence			
	Total	Male	Female		Primary/ secondary	Tertiary		Town	Rural	
	n (%)	n (%)	n (%)	p value	n (%)	n (%)	p value	n (%)	n (%)	p value
	n (%)	n=19	n=25		n=27	n=7		n=30	n=14	
Treatment of schizophrenia is possible										
Strongly agree	16(36)	8(42)	8(32)	0.84	13(35)	3(43)	0.69	11(37)	5(36)	0.39
Agree	19(43)	7(37)	12(48)		16(43)	3(43)		15(50)	4(29)	
Disagree	1(2)	1(5)	0(0)		1(3)	0(0)		1(3)	0(0)	
Strongly disagree	0(0)	0(0)	0(0)		0(0)	0(0)		0(0)	0(0)	
Dont know	8(18)	3(16)	5(20)		7(19)	1(14)		3(10)	5(36)	
The best place for treatment is										
Witch doctors	2(5)	2(11)	0(0)	0.24	2(5)	0(0)	0.66	2(7)	0(0)	0.54
Traditional healers	0(0)	0(0)	0(0)		0(0)	0(0)		0(0)	0(0)	
Hospital	40(91)	16(84)	24(96)		33(89)	7(100)		27(90)	13(93)	
Ancestors burial places	0(0)	0(0)	0(0)		0(0)	0(0)		0(0)	0(0)	
Church	2(5)	1(5)	1(4)		2(5)	0(0)		1(3)	1(7)	
Other	0(0)	0(0)	0(0)		0(0)	0(0)		0(0)	0(0)	
Schizophrenia is a punishment from the following										
God	8(18)	1(5)	7(28)	0.24	8(22)	0(0)	0.60	5(17)	3(21)	0.53
Ancestors	4(9)	2(11)	2(8)		3(8)	1(14)		3(10)	1(7)	
Wrong doing	4(9)	1(5)	3(12)		4(11)	0(0)		2(7)	2(14)	
Drug abuse	9(20)	3(16)	6(24)		8(22)	1(14)		5(17)	4(29)	
It is not a punishment	19(43)	12(63)	7(28)		14(38)	5(71)		15(50)	4(29)	
Rich people cannot become mentally ill										
Strongly agree	5(11)	2(11)	3(12)	0.26	4(11)	1(14)	0.31	4(13)	1(7)	0.16
Agree	8(18)	2(11)	6(24)		8(22)	0(0)		7(23)	1(7)	
Disagree	14(32)	5(26)	9(36)		13(35)	1(14)		9(30)	5(36)	
Strongly disagree	10(23)	7(37)	3(12)		6(16)	4(57)		6(20)	4(29)	
Dont know	7(16)	3(16)	4(16)		6(16)	1(14)		4(13)	3(21)	
What can be done to stop/reduce schizophrenia?										
Respect ancestors	5(11)	1(5)	4(16)	0.053	5(14)	0(0)	0.49	3(10)	2(14)	0.11
Pray to God	29(66)	12(63)	17(68)		23(62)	6(86)		22(73)	7(50)	
Wealth	3(7)	0(0)	3(12)		3(8)	0(0)		3(10)	0(0)	
Avoid curse	4(9)	4(21)	0(0)		4(11)	0(0)		1(3)	3(21)	
Other	3(7)	2(11)	1(4)		2(5)	1(14)		1(3)	2(14)	
Schizophrenia can be inherited										
Strongly agree	13(30)	6(32)	7(28)	0.95	11(30)	2(29)	0.46	10(33)	3(21)	0.35
Agree	19(43)	9(47)	10(40)		15(40)	4(57)		13(43)	6(43)	

Disagree	5(11)	2(11)	3(12)	5(14)	0(0)	3(10)	2(14)
Strongly disagree	2(5)	5(1)	1(4)	2(5)	0(0)	1(3)	1(7)
Don't know	5(11)	5(1)	4(16)	4(11)	1(14)	3(10)	2(14)

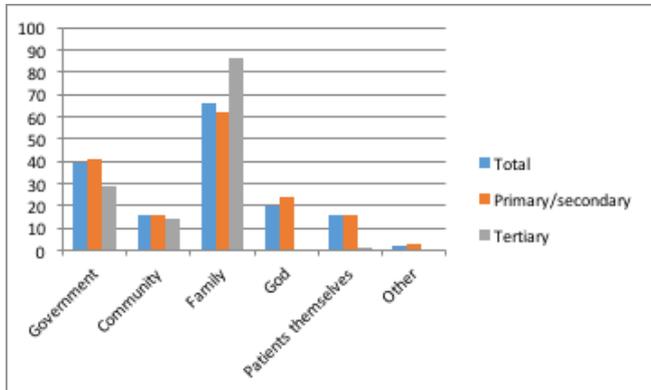


Figure 1. Who should be responsible for proper care of the schizophrenic patient? By percentage of participants, comparing primary/secondary with tertiary education.

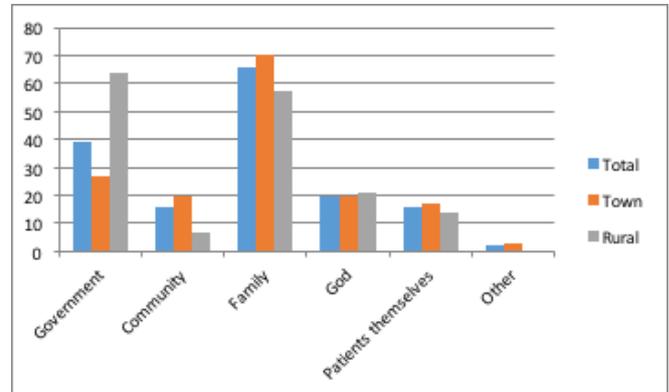


Figure 2. Who should be responsible for proper care of the schizophrenic patient? By percentage of participants, comparing town and rural residence.

Table 3. Attitude towards schizophrenia

Beliefs	Gender			Education			Residence			
	Total	Male	Female	Primary/secondary	Tertiary		Town	Rural		
	n (%)	n (%)	n (%)	n (%)	n (%)	p value	n (%)	n (%)	p value	
	n (%)	n=19	n=25	n=27	n=7		n=30	n=14		
Schizophrenic people should not be living with people and spend money like other family members										
Strongly agree	9(20)	3(16)	6(24)	0.31	9(24)	0(0)	0.69	8(27)	1(7)	0.97
Agree	12(27)	5(26)	7(28)		9(24)	3(43)		5(17)	7(50)	
Disagree	12(27)	6(32)	6(24)		8(22)	4(57)		10(33)	2(14)	
Strongly disagree	7(16)	4(21)	3(12)		7(19)	0(0)		5(17)	2(14)	
Don't know	4(9)	1(5)	3(12)		4(11)	0(0)		2(7)	2(14)	
The best treatment for schizophrenic patients is to be part of normal community										
Strongly agree	13(30)	3(16)	10(40)	0.64	12(32)	1(14)	0.94	11(37)	2(14)	0.27
Agree	22(50)	14(74)	8(32)		16(43)	6(87)		13(43)	9(64)	
Disagree	4(9)	0(0)	4(16)		4(11)	0(0)		3(10)	1(7)	
Strongly disagree	2(5)	1(5)	1(4)		2(5)	0(0)		1(3)	1(7)	
Don't know	3(7)	1(5)	2(8)		3(8)	0(0)		2(7)	1(7)	
Being together with schizophrenic patient is best way to improve their health										
Strongly agree	13(30)	6(32)	7(28)	0.95	11(30)	2(29)	0.46	10(33)	3(21)	0.35
Agree	19(43)	9(47)	10(40)		15(40)	4(57)		13(43)	6(43)	
Disagree	5(11)	2(11)	3(12)		5(14)	0(0)		3(10)	2(14)	
Strongly disagree	2(5)	1(5)	1(4)		2(5)	0(0)		1(3)	1(7)	
Don't know	5(11)	1(5)	4(16)		4(11)	1(14)		3(10)	2(14)	

There was a strange mismatch of the attitude towards living with people with schizophrenia. Almost half did not think that patients should be living in the community and spend money like other people but 80% believed that the best treatment is to be part of community. This needs further investigation.

This is small study and hence some of the numerical differences might have reached significance with greater number.

Conclusion

Beliefs about supernatural causes of schizophrenia and stigmatizing, negative attitudes towards people with mental disorders are still present in Uganda due to lack of enough awareness in the population regardless of residential areas. However a large proportion of the participants felt that the best place for treatment of the patient would be the community and there seems to be a willingness to include the patients in the community although education about the disease, symptoms, and how to best help the patient is needed. Community awareness could be conducted as an education on the known bio-psycho-social basis of mental disorders and the role that community and social inclusion play in recovery from mental illness.

Conflict of interest: All authors have declared that there is no conflict of interest.

Funding: No financial assistance or grants were solicited or obtained during the course of preparing this article.

References

1. Ndeti D. Your A-Z on Mental Health, 1st ed. Nairobi, Acrodile Publishing Limited, 2010.
2. WHO Schizophrenia. www.who.int/mediacentre/factsheet/fs397/en/ (accessed 18 Jul2016).
3. Iheanacho T, Marienfeld C, Stefanovics E, Rosenheck RA. Attitudes toward mental illness

- and changes associated with a brief educational intervention for medical and nursing students in Nigeria. *Acad Psychiatry* 2014; 38: 320–4.
4. Iheanacho T, Kapadia D, Ezeanolue CO, et al. Attitudes and beliefs about mental illness among church-based lay health workers: experience from a prevention of mother-to-child HIV transmission trial in Nigeria. *Int J Cult Ment Health* 2016; 9: 1–13.
5. Kulhara P, Chakrabarti S. Culture and schizophrenia and other psychotic disorders. *Psychiatr Clin North A* 2001; 24: 449–64.
6. Matthias C, Arboleda Flórez J, Baumann A, Bernert S, Gaebel W, Hocking B. The wpa global programme to reduce stigma and discrimination because of schizophrenia Schizophrenia - Open the Doors Training Manual. 2005; : 1–123.
7. Wolff G, Pathare S, Craig T, Leff J. Community knowledge of mental illness and reaction to mentally ill people. *Br J Psychiatry* 1996; 168: 191–8.
8. Taylor SM. Scaling Community Attitudes Toward the Mentally III. 1981; 7.
9. Abebe S. Studies on psychotic disorders in rural Ethiopia. 2011.
10. Adebawale T, Oqunlesi A. Beliefs and knowledge about aetiology of mental illness among Nigerian psychiatric patients and their relatives. *Afr J Med Med Sci* 1999; 28: 35–41.
11. Adewuya A, Oguntade A. Doctors' attitude towards people with mental illness in Western Nigeria. *Soc Psychiatry Psychiatr Epidemiol* 2007; 42: 931–6.

In South Sudan the options for treatment and care of mentally ill is very limited with no psychiatric hospitals and few psychiatric medications available. According to a 2016 report by [Amnesty International](http://www.amnesty.org/en) only two psychiatrists are practicing in the country. Additionally, health personnel have very little training and knowledge regarding mental illness and even if they had no accessible treatment options are available. The great majority of patients will therefore be entirely depended on their family and for many the stigmatization and lack of facilities will result in prison. While there is no easy and simple way to solve the issues community education regarding the more common mental diseases is extremely important to reduce stigmatization. Likewise, clinical guidelines for diagnosing and treatment must be made available for health personnel. See [Post-Conflict Mental Health in South Sudan: Overview of Common Psychiatric Disorders](#)

Thanks to everyone who contributed to this issue especially John Adwok, Ciara Hogan, Peter Jones, Constantine Loum, Nancy MacKeith, Wani Mena, Jane Newson-Smith and Julie Tanaka - also WHO Media Relations.

Famine and its effects on health in South Sudan

A Commentary

Edward Eremugo Luka and Ann Burgess

Correspondence: Edward Eremugo Luka opikiza@yahoo.com

Background

The Government of South Sudan, together with the World Food Programme (WFP), UNICEF and the Food and Agriculture Organization (FAO) declared famine in parts of South Sudan on February 20th 2017, based on the Integrated Food Security Phase Classification (IPC) current and projected (January-July 2017) Acute Food Insecurity Situation reports [1]. The famine affects more than 4.9 million people, who are in urgent need of food and nutrition assistance, mainly in Northern Bahr el Ghazal and Unity states, especially in the counties of Leer, Mayendit, Koch and Panyijar in Unity state [2].

This declaration followed several months of reported food shortages and malnutrition in parts of the country affected by the civil war. Unfortunately, the famine is rapidly spreading to other areas, exacerbated by the spread of the conflict and drought. This famine is the result of the civil war which started in December 2013 and the subsequent deterioration in the economy of the young nation [3].

Famine and public health

The Merriam-Webster dictionary defines famine as “an extreme scarcity of food” – sometimes called “acute food insecurity”.

Famine leads to severe undernutrition especially affecting young children and pregnant women which is a public health emergency. Undernutrition weakens the body and increases the likelihood of acquiring infections, often leading to death. Infections, on the other hand, increase the risk of undernutrition because:

- There is loss of appetite.
- Energy and nutrient needs increase.
- Nutrients are poorly absorbed or lost (as in diarrhoea).

So undernutrition and infections “make each other worse” [4]. That is why the World Health Organization’s famine response plan in South Sudan “focuses on working with partners to prevent the spread of diseases amongst people weakened by food insecurity” [5].

Effects of famine on physical health

Famine has short-term and long-term effects on the human body, and affects children and adults differently [4].

Short-term effects of severe undernutrition

Severe undernutrition has the worst effects during a child’s critical ‘first 1000 days’ (i.e. from conception to the age of two years), and mortality rates during famines are highest for infants and young children [6].

A woman who suffers severe food shortages before or during pregnancy, and so, is undernourished has:

- An increased risk of miscarriage and still birth.
- Her baby being born with a low birthweight (LBW) (<2500g) due to poor foetal growth or being preterm. LBW babies have low stores of some nutrients (e.g. fat, vitamin A and iron); they are at risk of infection, feeding difficulties, hypothermia, and increased mortality [7].

An undernourished pregnant woman is herself at increased risk of death, and, during delivery, of blood loss leading to anaemia. A severely undernourished mother may not produce enough breast milk and her milk may be low in fat, and micronutrients such as iodine or vitamin A [7].

A young child with severe undernutrition (also called ‘severe acute malnutrition’) has:

- Loss of body weight and reduced linear growth (resulting in stunting).
- More frequent and more serious infections due to a depressed immune system.
- Reduced cognitive and mental development which may have devastating effects later in life.

An older person is particularly at risk of undernutrition during famines because she or he:

- Is less resilient than a younger adult to food insecurity.
- May have mobility and other problems that limit access to rations.
- May share their food with children.

Older people who are displaced and/or living alone (or separated from relatives) are most vulnerable.

Undernutrition in older people is associated, not only with increased mortality and morbidity, but also with a greater risk of falls, poorer mobility, and psychological stress (especially if displaced) such as depression and anorexia.

In a Protection of Civilians camp in 2015 in Juba 2 in 5

older people were moderately or severely undernourished (the average meal frequency was 1.8/day), and 2 in 5 suffered psychological stress [8].

Other groups disproportionately affected by famine include people with disabilities or with long-term health problems such as HIV/AIDS or tuberculosis.

Long-term effects of severe undernutrition

Young and unborn children who survive severe undernutrition into adulthood have long-term effects. Exposure to suboptimum nutrition during crucial periods of development especially the fetal period increases the risk of metabolic syndrome and non-communicable diseases in later life [9]. Studies of the Chinese famine of the 1959–1961, and the Dutch hunger winter (1944–1945) show the effects of fetal and childhood undernutrition in adults [10, 11]. “Surviving adults prenatally exposed to the Dutch famine had higher mortality up to the age of 50 years, worse self-rated health, higher coronary heart disease risk, reduced glucose tolerance, higher BMI, and increased risk of psychological disorders [11]. There are likely to be similar long term effects of the present famine in South Sudan.

It is also likely that famine affects long-term mental health among some individuals especially those who are displaced, and lose home and land.

Effects of famine on the economy

The long-term effects of famine on adult health is depressing the economic development of South Sudan. By limiting the numbers (through death) and productivity of the labour workforce (through stunted physical or mental growth), there will not be enough healthy people to keep the economy, including food security, going [12]. For the individual household, the health effects of famine also impact on livelihoods. Data from Ethiopia famines suggest that livelihood disruption following famine does not just affect one generation but also subsequent ones [13]. The long-term effects on the economy of South Sudan’s 1988 famine in Bahr el-Ghazal are not documented.

During famines schooling is disrupted, especially where there is displacement; and undernourished hungry children have low attention spans and poorer school outcomes.

Conclusions

The United Nations and other humanitarian agencies are scrambling to limit the effects of the famine on the devastated population in South Sudan. The short-term and long-term effects on the young nation will be profound if the situation is not arrested quickly. As the main driver of the famine, the civil war must end so that access to the population that urgently need food can be attained.

References

1. UNICEF, FAO and WFP Joint Press Release. Famine hits parts of South Sudan, February 20th, 2017 https://www.unicef.org/media/media_94890.html
2. Integrated Food Security Phase Classification (IPC). IPC Global Alert - South Sudan - localized famine and unprecedented levels of acute malnutrition in Greater Unity <http://www.ipcinfo.org/ipcinfo-detail-forms/ipcinfo-news-detail/en/c/471308/> Accessed May 24th, 2017)
3. Devi S. Famine in South Sudan. *Lancet* 2017; 389 (10083):1967–1970
4. Burgess A, Danga L. Undernutrition in Adults and Children: causes, consequences and what we can do. *South Sudan Medical Journal* May 2008; 1(2).
5. WHO Famine Response Plan in South Sudan <http://www.afro.who.int/en/ssd/news/item/9481-whos-famine-response-plan-in-south-sudan-focuses-on-working-with-partners-to-prevent-spread-of-diseases-amongst-people-weakened-by-food-insecurity.html>
6. Kidane A. Mortality estimates of the 1984–85. Ethiopian famine. *Scand J Soc Med.* December 1990;18(4):281–6.
7. Savage King F, Burgess A, Quinn VJ, Osei AK. Nutrition for developing countries. 3rd ed. 2015. Oxford University Press, Oxford.
8. HelpAge International. Rapid assessment of the nutrition needs of older people in UN House POC camps in Juba in April 2015, South Sudan <http://nutritioncluster.net/rapid-assessment-nutrition-needs-older-people-un-house-poc-camps-juba-april-2015-south-sudan/>
9. Bhutta ZA. Early nutrition and adult outcomes: pieces of the puzzle. *Lancet* 10 August 2013; 382 (9891):486–487.
10. Wen Fan, Yue Qian. Long-term health and socioeconomic consequences of early-life exposure to the 1959–1961 Chinese Famine. *Social Science Research* 2015; 49:53–69.
11. Roseboom TJ, van der Meulen JHP, Osmond C, Barker DJP et al. Coronary heart disease after prenatal exposure to the Dutch famine, 1944–45. *Heart* 2000; 84 (6):595–598.
12. Case A, Fertig A, Paxson C. The lasting impact of childhood health and circumstance. *Journal of Health Economics* 2005; 24:365–389.
13. Taye A, Mariam DH, Murray V. Interim report: review of evidence of the health impact of famine in Ethiopia. *Perspectives in Public Health* 2010; 30(5):222–226.

Thanks to Ciara Hogan for help with sourcing information on older people.

Samaritan’s Purse in South Sudan

Samaritan’s Purse began working in southern Sudan in 1997, before South Sudan gained its independence in 2011. Samaritan’s Purse provides emergency relief support to internally displaced people (IDPs), refugees, and returnees across the country. The organization’s multi-sector response includes agricultural training, food assistance, health services, nutrition interventions, and water, sanitation & hygiene (WASH) programming. Samaritan’s Purse has four main areas of operation in the Greater Bahr el Ghazal and Upper Nile regions of the country. In 2016, Samaritan’s Purse distributed 41,949 metric tons of food to 899,363 people and produced 591,944,558 liters of safe water for refugees in South Sudan. In addition, 5,109 children under the age of five were identified with moderate acute malnutrition (MAM) and received nutritional support through the targeted supplementary feeding program (TSFP). Samaritan’s Purse also received 5,824 inpatient admissions and provided outpatient treatment to 5,329 at the Maban County Hospital located in South Sudan.

For more information contact Shanna Carter, Information & Communications Manager, South Sudan scarter@samaritan.org



Fig 1. Child nutrition/weight screening at Yida refugee camp in South Sudan. Photo by Shanna Carter/Samaritan’s Purse



Fig 2. Agriculture and livelihoods project at local garden in Aweil East, South Sudan. Photo by Shanna Carter/Samaritan’s Purse



Fig 3. Community latrine construction in Mayendit, South Sudan. Photo by Amanda Patterson/Samaritan’s Purse



Fig 4. Lead mothers nutrition rally in Mayendit, South Sudan. Photo by Frederick Hamic/Samaritan’s Purse

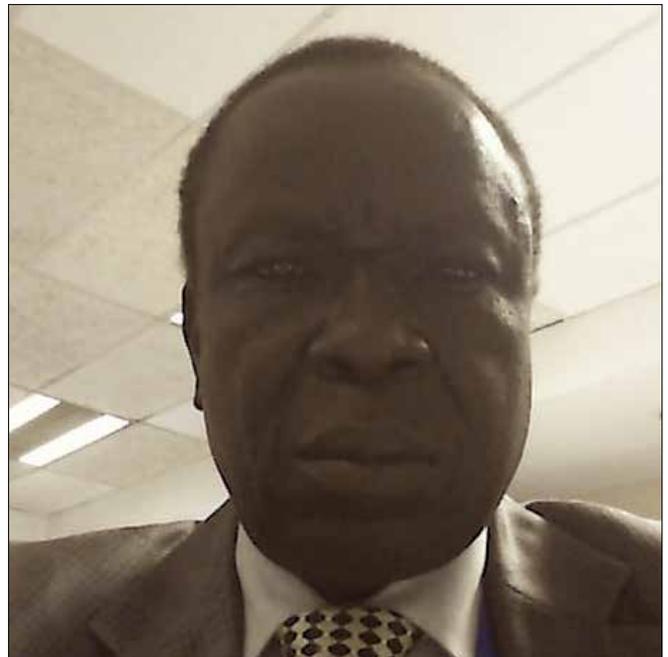
Obituary: Dr Festo Jambo Elias Kayanga

Dr Festo Jambo is among the latest crop of South Sudanese obstetricians who emerged through the struggle of the 1980s and 1990s to serve in the field when few doctors existed.

He was born in 1959 to Mr Kayanga Iyengwa of Kediba clan and Mrs Aja Buda of Vora clan in Mundri West County in Western Equatoria. Dr Festo went to local schools in the 1960s and early 1970s before joining Rumbek Secondary School. He completed his secondary education at Loka Secondary School where he sat for his Sudan School Certificate Examinations. He went on to graduate from the College of Medicine, University of Juba in 1990.

Dr Festo had a distinguished career in medicine. He qualified as an obstetrician and gynaecologist from the Sudan National Specialization Board in 2009 and worked in several hospitals in Sudan and South Sudan, including El Saudi Maternity Hospital in Kassala, El Suki Specialty Hospital in Sennar and Juba Teaching Hospital in South Sudan. He served as a senior obstetrician and gynaecologist and Director General of JTH, and was also on the faculty of the College of Medicine of Juba University, where his students described him as a “hard-working and caring instructor”.

Dr Festo hard-working set his sight on serving the people of South Sudan in his field of medicine. This dedication led him and other colleagues to set up one of the well-known private maternity hospitals in Juba – The Munuki Specialized Maternity Center (Mauna) in 2009. Due to his diligence and attention to his work, his name became synonymous with “pregnancy and birth” to the women



who went to him for antenatal care and a safe place to deliver.

He will be greatly missed by his patients and students who had come to love his compassion and considerate persona. He will especially be missed by his community, who saw him in sorrow comforting people in funerals or joining them in happy occasions.

Dr Festo Jambo died in Juba, South Sudan, on March 27, 2017 after suffering from complications of liver disease. He is survived by his dear wife Mama Monica Jambo and his children Parag, Kide, Buda and Novela.

IndiKit: An online guide to SMART indicators for Relief and Development Projects

IndiKit (<https://www.indikit.net/>) aims to enable humanitarian and development workers to:

1. Use well-formulated indicators for measuring their interventions' progress towards achieving the intended outputs, outcomes and impact; and
2. Correctly collect and analyse the data required for each indicator.

It lists hundreds of indicators across different sectors, including health, nutrition and WASH. With two or three clicks, anyone can access useful, step-by-step guidance prepared based on actual field experience. Its content is in line with the existing standards and was reviewed by a range of INGOs, and UN, academic and freelance experts. Similarly to Wikipedia, any relief and development practitioner can propose new content and improve the existing guidance.

IndiKit was developed by the Czech relief and development organization People in Need (PIN).

South Sudan Medical Journal

Updated Guidelines for Authors

Submission of articles

The South Sudan Medical Journal (SSMJ), the only medical journal in South Sudan, welcomes submissions of articles from you. We publish original research, reviews, survey reports/KAP studies, discussions and commentaries as well as case studies and presentations, and letters to the Editor.

Before submitting an article read the Author's Guidelines on our website – see a summary below. Failure to follow the guidelines may mean your paper is rejected. Once accepted our Editorial Team can help you to prepare your article for publication. All articles are double-blind peer-reviewed. The Editor decides in which issue of the journal your article is published. Submit your article to the Editor-in-Chief at admin@southernjournal.com

Summary of SSMJ Author's Guidelines 2017

- The opinions and information in articles are the responsibility of the author/s and do not necessarily represent the views of SSMJ.
- SSMJ reserves copyright of published material. SSMJ is licensed under a Creative Commons Attribution - Noncommercial Works License which means materials can be downloaded and shared for educational and non-commercial purposes. SSMJ is a member of African Journals Online (AJOL), this allows AJOL to publish SSMJ materials on its website.
- For clinical research articles obtain ethical permission to publish. See Guidance for undertaking research in the Republic of South Sudan.
- If any included material (e.g. table, image) has been published elsewhere obtain the consent of the copyright holder to republish it.
- Articles must be no longer than a total of 1500-2000 words – this includes references, tables, etc.
- Use Microsoft Word, and minimum formatting. Do not: number your pages, or use Endnotes, or insert Headers or Footers or put text in boxes. Do use SI units.
- Use 'UK-English'.
- For full length articles include an Abstract of no more than 300 words, and up to 5 Keywords.
- Give each table a number and title and mention it in the text. Do not use shading and keep formatting simple.
- Send images as separate files in uncompressed .jpg format (not Word or Powerpoint). Give each image a number and caption and say to whom the image should be credited. If the image is not your property get permission from the copyright holder. If the image shows an identifiable person obtain permission from the person, or guardian, to publish it.
- References must be kept to a maximum of 15 and cannot be changed after the manuscript is submitted. Insert citations in the text as numbers between square brackets, e.g. [1]. List references at the end of the article in numerical order (Vancouver style). Read the guidelines on the website for examples of how to prepare references.

Every effort has been made to ensure that the information and the drug names and doses quoted in this Journal are correct. However readers are advised to check information and doses before making prescriptions. Unless otherwise stated the doses quoted are for adults.