

RETROSPECTIVE STUDY OF SKIN INFECTIONS PRESENTED AT AMANAWA GENERAL HOSPITAL SOKOTO STATE FROM JANUARY – DECEMBER 2014**¹M.T. BELLO*, ¹A.B. KASARAWA and ²A.M. YAKUBU**¹Department of Science Laboratory Technology, Umaru Ali Shinkafi Polytechnic, Sokoto State²Department of Mathematics and Statistics, Umaru Ali Shinkafi Polytechnic, Sokoto Statebmalamitambawal@gmail.com**ABSTRACT**

Skin infections are among the most common devastating problems that affect the lives of many people especially in the rural areas of the state, and yet they are still receiving little attention by the various agencies of government and other stakeholders. This study focused on the prevalence of skin infection presented at Amanawa General Hospital, Sokoto. The data was obtained from the medical record register of the hospital from January-December 2014. A total of 16,569 cases, aged 1-59 years with skin infections were recorded during the period. Male patients constituted 7,388 (44.6%) and 9,179 (55.4%) were female. Fungal skin infections had the highest prevalence of 11,620 (70.0%) followed by bacterial skin infections (4,609); (28.0%) and then viral skin infections (340); (2.0 %). Fungal skin infections were more prevalent especially during the rainy (August , September and October) with 9.4%, 10.0% and 9.6 respectively and heat season (April, May and June) with 8.8%, 8.7% and 9.3% respectively, because fungi thrive well in warm or damp area. Therefore these findings will serve as additional public health information, reminder and the need for urgent measures by the state government, ministry of health, public health practitioners, and health policy makers to provide special treatment, preventive, control services in order to reduce the prevalence and to serve as a base line for further research of skin infections in the study area.

Keywords: Skin infections, Incidence, Infected patients, Review.**1. INTRODUCTION**

Skin disease is one of the most common human illnesses. Its endemic nature in United Kingdom and USA especially in rural areas allows it to pervade all cultures, all ages and to affects between 30% and 70% of individuals, with even higher rates in at-risk subpopulations (Bickers *et al.*, 2006; Scholfield *et al.*, 2009). Its detrimental effects on health range from physical incapacity to death (Basra and Shahrukh, 2009). Children and their families often bear the brunt of this disease burden (Mahe, 2005). Similar study of skin infections also reported a higher prevalence of superficial mycoses among pupils in rural areas of Zamfara State, Nigeria; especially in pupils living in rural areas within primary school ages of 6 to 10 years was a (Shehu *et al.*, 2014). The International Classification of Disease classify skin diseases as number 10 most infectious disease in man and other animals and subsequent classification of human disease lists more than 1,000 skin or skin-related illnesses, a pattern dominated by a few conditions accounting for most of the skin disease burden (Fisher *et al.*, 2007). Yet despite this profound impact, skin disease still continues to receive relatively little attention in national or global health debate (Hay and Fuller, 2012). Skin infections can be caused by a wide variety of pathogenic organisms the symptoms can vary in severity. In some cases, infections can spread beyond the skin into the bloodstream (Bell-Syer *et al.*, 2012). There are several types of skin infections and often depend on the cause. For example, impetigo is a skin infection caused by a bacterium namely *Staphylococcus aureus*. Some common types of skin infections are boils, cellulitis, rubella, and fungal diseases such as yeast infections, ringworm or tinea infections (Acha and Szyfres, 2003; Nweze, 2010).

The three groups of microorganisms that are the main cause of skin infections are viruses, bacteria and fungi. Many types of bacteria can cause skin infections, but the two most common are *Staphylococcus aureus* and *Streptococcus* species (Lopez-Varela *et al.*, 2015). Viral skin infections are most often caused by one of the three groups of viruses: poxvirus, human papillomavirus, and herpes simplex virus (Many, 2014). Skin infections can also be caused by fungi, most commonly keratinophilic dermatophytes and yeasts (Johnson, 2004). Several factors can increase a person's risk of developing a skin infection such as a decreased immune system caused by an illness (Roberts *et al.*, 2003) or a side effect of medication (Vary, 2015). These can increase the chances of skin infections and in addition, fungi often grow in warm and moist environments (Taylor *et al.*, 2012). Therefore, wearing sweaty or wet clothes can be a risk factor for skin infections or a break or cut in the skin may allow bacteria to get into the deeper layer of the skin (Ochei and Kolhatkar, 2000).

The symptoms of a skin infection can vary depending on the type of pathogens involved (Vaningen, 2013). Common symptoms generally include redness of the skin, a rash may also develop

in some cases, such as cellulites *Staphylococcus* infection, swelling, sores, blisters, and lesions can result. A skin infection can be diagnosed after physical and medical examinations. In some cases, direct microscopy using 10% KOH and a selective culture of skin scraped cells helps a doctor determine what type of fungus or bacteria is present. Treatment depends on the cause of the infection and severity (Refai, *et al.* 2013). Some types of viral skin infections may not require treatment. Bacterial infections are often treated with medications such as antibiotics. Medication is often administered directly on to the skin. When the infection is moderate to severe, oral antibiotics or possibly intravenous medication may be needed. Medications to reduce discomfort, such as anti-inflammatory medications, may be recommended (Aiello and Mays, 2004). Skin diseases are one of the three common causes of morbidity in the developing countries of sub-Sahara Africa, along with malaria and diarrhea (Basra and Shahrugh 2009).

Bacterial skin infections constitute a significant proportion of consultations in hospitals and clinics (Lopez-Varela *et al.*, 2015). However, there is paucity of data on the prevalence of dermatological lesions in hospitalized children and adults in Nigeria, especially northwestern part of the country (Vaningen, 2013). Skin infections are most commonly due to Group A *Streptococcal* bacteria and are associated with outbreaks of acute post *Streptococcal* glomerulonephritis (kidney disease), Acute Rheumatic Fever (ARF) and Rheumatic Heart Disease (RHD) Taylor *et al.*, 2012). Many other types of Bacteria can infect the skin, but the most commonly reported are *Staphylococcus* and *Streptococcus* skin infections caused by less common bacteria which may develop in people while hospitalized or living in a nursing home, while gardening, or while swimming in a pond, lake, or ocean (Crawford and Hollis, 2007). Leprosy also known as Hansen's diseases is an infection caused by a slow-growing type of bacteria called *Mycobacterium leprae* (Abdallah *et al.*, 2009).

Skin infections are serious dermatologic conditions throughout the world and continue to be an increasingly important issue concerning human health. The aim of this work was to carry out a review of records of all the skin infections presented at General Hospital Amanawa Sokoto State, from January to December 2014 in order to determine their prevalence. The study will therefore, serve as additional public health information, reminder and the need for urgent measures by the state government, ministry of health, public health practitioners, and health policy makers to provide special treatment, preventive, control services in order to reduce the prevalence and to serve as a base line for further research of skin infections in the study area

2. MATERIALS AND METHODS

The study area is Amanawa General Hospital in Dange Shuni Local Government Area in Sokoto State. It is popularly known as Amanawa leprosarium; located at the scenic valley along the Sokoto- Gusau highway, about 20km from Sokoto town. The Leprosy Mission International runs the hospital and has been attending to all cases of skin infections from all the Local Government Areas in the State and also from neighboring states in collaboration with the Sokoto State Government, since 1995. The data for this review were obtained from Medical Record Office of the Hospital which keeps records of all skin cases and infections that are presented and treated. Management approval to collect data from relevant registers in medical record office was given by the Principal Medical Officer (P.M.O) of the hospital. Medical record registers (IDH register) of 2014, from January- December 2014 were examined. Relevant information on all cases of Skin infections were extracted and skin diseases caused by viruses, bacteria and fungi were ignored during the period under review. Viral, bacterial and fungal skin infections extracted were classified based on the information in the registers.

Statistical Analysis: The data were analysed using descriptive statistical tools such as Percentage (%) and mean rate. The results are presented as bar chart

3. RESULTS

During the period of this study, 16,569 cases of skin infections were recorded, out of which 7,388 (44.6%) were males and 9,179 (55.4%) were females. Out of the total number of all the cases, 4609 (28.0%) were bacterial skin infections and the highest among the bacterial infections presented was Leprosy infection, which is a chronic infection due to *Mycobacterium leprae* and *Mycobacterium lepromatosis* with 1,679 cases; while impetigo, which is primarily caused by *Staphylococcus aureus* or *Streptococcus pyogenes* had 987 cases, Others are 802 cases of boils, 641 cases of other *Staphylococcal* infections, 391 cases of cellulitis, and the least was 109 cases of carbuncles. Fungal infections had the highest number of cases with 11,620 (70.0%) as shown in Figure 1. Out of this number, 2,539 cases were *Tinea capitis*, 2,361 *Tinea unguium*, 1,274 *Tinea corporis*, 938 *Tinea pedis*, 823 *Tinea piedra*, 377 *Tinea barbae*, 279 *Tinea manus*, 257 *Tinea faciei*, 127 *Tinea cruris* 423 *Tinea versicolor* and Yeasts Candidiasis had 2,520 cases recorded. The lowest number of skin infections

recorded was Viral skin infections with 340 (2.0%) cases, out of this number, measles infection was the highest with 193 cases, followed by 59 chicken Pox, 49 Type 2 herpes simplex virus, 21 HIV related skin disease, 10 Type 1 herpes simplex virus, 7 shingles and the least was 4 cases of wart viral infections.

Table 1: Monthly Specific Rates (%) of Skin infections at Amanawa General Hospital Sokoto State from January- December 2014

Months	Male	Female	Bacterial Skin Infections	Monthly specific rates (%)	Fungal Skin Infections	Monthly specific rates (%)	Viral Skin Infection	Monthly specific rates (%)	Total	Specific rates (%)
JAN	596	696	320	24.8	867	67.1	42	3.2	1292	7.8
FEB	496	522	414	40.7	1000	98.2	13	1.3	1018	6.1
MAR	545	734	422	33.0	1202	94.0	15	1.2	1279	7.7
APR.	655	811	425	29.0	1235	84.2	13	1.0	1466	8.8
MAY	654	799	348	24.0	864	59.4	21	1.4	1453	8.7
JUNE	682	869	410	26.4	1002	64.6	18	1.1	1551	9.3
JULY	597	795	411	29.5	1126	81.0	16	1.1	1392	8.4
AUG	661	893	398	25.6	1100	70.8	39	2.5	1554	9.4
SEPT	735	932	382	23.0	981	58.8	38	2.3	1667	10.0
OCT.	751	849	377	23.5	892	53.5	26	1.6	1600	9.6
NOV	459	606	354	33.2	651	61.1	47	4.4	1065	6.4
DEC.	557	673	348	28.3	700	57.0	52	4.2	1230	7.4
TOTAL	7,390	9,179	4,609	28.0	11,620	70.0	340	2.0	16,569	
\bar{X}(MEAN)	615.8	765	384	2.3	968	5.8	28.3	0.2	1380.7	

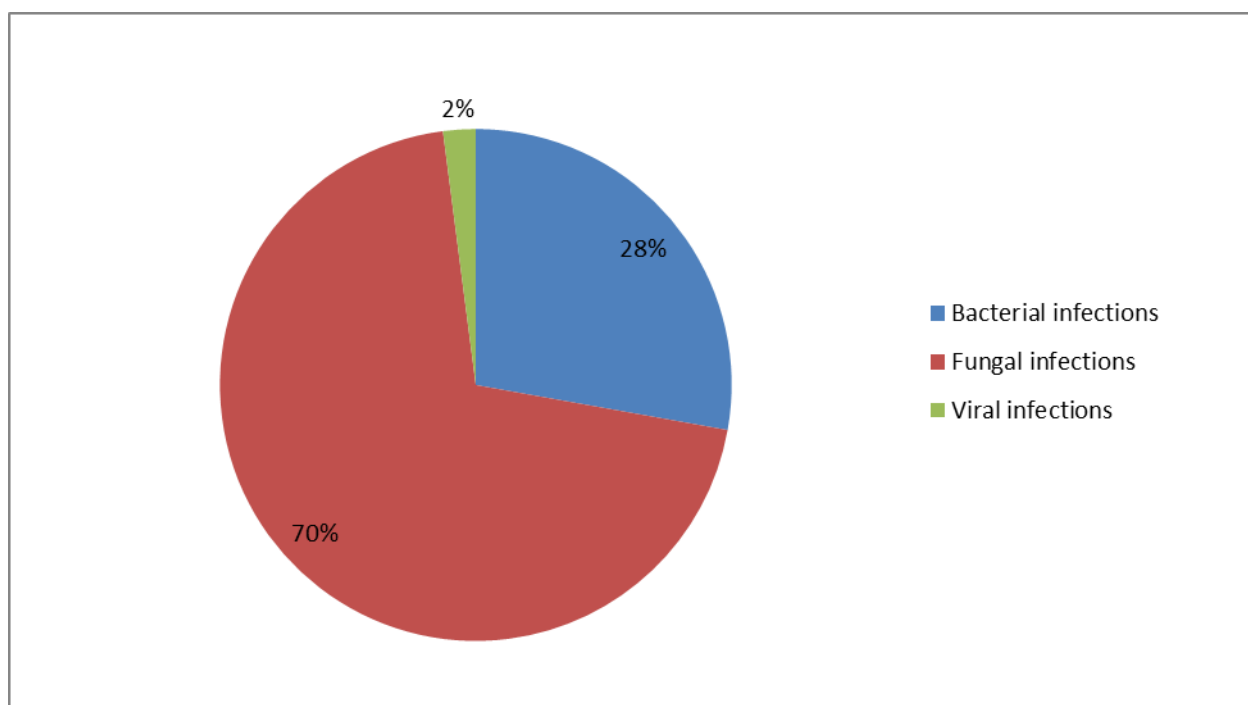


Figure 1: Distribution of Skin infections Presented at Amanawa GHS from Jan- Dec. 2014

4. DISCUSSION

The study reviewed 16,569 of skin infections that were presented at Amanawa General Hospital Sokoto in 2014 and out of this total number, fungal skin infections caused by keratinophilic fungi such as dermatophytes and yeasts were the highest with 70%. Bell-Syer *et al.* (2012) found that fungi including the yeasts were among the most common cause of skin infections and dermatologic conditions throughout the world and continued to be an increasingly important issue in public health. With increase in the spread of this fungal infection worldwide, the risk of skin disorder of humans also increases. This agreed with the study reported by Shehu and Bilyaminu (2014) that there were higher incidence of *Tinea capitis* among primary school age children in Runjin Sambo area of Sokoto State. Similar findings were reported by Vos *et al.* (2012) that three skin conditions were in the top 10 most prevalent diseases globally in year 2010, fungal skin diseases (4th global prevalence=984,290,432), other skin and subcutaneous diseases (5th), and acne vulgaris (8th global prevalence=645,499,136).

The findings show that skin diseases caused by bacteria are second most prevalent in the study area and also caused a huge burden in the global context of health and collectively with, fungal skin conditions were the leading cause of nonfatal burden expressed as years lost due to disability in; taking into account health loss due to premature death expressed as disability-adjusted life years. Skin remains the 18th leading cause of health burden worldwide (Mahaisavariya *et al.*, 2003). Previously reported global bacterial diseases estimated annual deaths for skin disease included 66.5×10^3 from bacterial skin infections such as cellulitis and 30.6×10^3 from non-melanoma skin cancer (NMSC) (Lozano *et al.*, 2012).

Higher cases of fungal skin infection were recorded during the heat period from April to June and during the rainy season from August to October, because fungi thrive well in warm or damp environment. This agrees with the study report of Lastoria and Abreu (2014) that bacterial cases are usually high during the hot season, especially boils. The factors generally thought to explain the high prevalence and incidence of common skin infections in developing countries are poverty related and include; a low level of hygiene (Shehu *et al.*, 2014) including difficulties accessing water (Vanningen, 2013), climatic factors and overcrowded living conditions (Taylor *et al.*, 2012). All these factors are present in Timor-Leste. According to Habib and Thomas (2000) skin diseases are one of the three common causes of morbidity in the developing countries of Sub-Sahara Africa, along with malaria and diarrhoea.

The overall data of this study suggests that significant changes could be made in reducing the burden of skin diseases by focusing on the small group of conditions, particularly infections, which account for the bulk of the community case load. Strategy could be implemented, to curtail these diseases namely, leprosy, cellulitis, impetigo, carbuncles pyoderma, fungal infections, tropical ulcers, measles, chicken pox, type 2 herpes virus, HIV/AIDS-related dermatoses and pigmentary disorders (Lim, 2005).

Lamb and dawn (2014) reported that little children are mostly infected with measles and chicken pox, rashes, boil etc. while female adult's diseases may be due to the creams they apply on their body which may cause skin infection on them like pimples, Acne, Eczema etc. The male adults suffers most with Tinea capitis which makes their hair to fall, and by sharing contaminated comb or clothing with somebody having the infection. They can also contact this fungal skin infection from the barbing saloon by using their clipper (Vary, 2015).

5. CONCLUSION

Skin infections are caused by a wide variety of pathogens. These skin infections are especially caused by bacteria, viruses and fungi. Fungal skin infections are more recorded during the heat period (April to June) and also during raining seasons (August to October) because fungi thrive well in warm or damp environments. Fungal skin infections had the highest (11,620 cases, 70.0%) prevalence and is of public health importance. Fungal skin infections rate could be reduced if measures such as public health education and policies are promulgated to stem the tide of these diseases.

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