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Scope of Skin Diseases in the Geriatric Population of an Urban Dermatology Clinic in Port Harcourt, Nigeria

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Abstract: *Background:* Aging is the progressive decline in optimal functioning and reserve capacity of all body systems, including the integumentary system. This decline leads to an increase in the predisposition to skin diseases in the geriatric population. The ageing process is both intrinsic and extrinsic with specific characteristics of presentation. Portharcourt. *Results:* The results showed a male to female ratio of 1: 1.5, with an age range of 65 to 94 years and a mean of 71.11±6.49. There was a 3.27% prevalence of skin diseases among geriatric patients. Most patients 50 (80%) presented between ages 65-74 years. The five most common disorders were papulosquamous 10 (16.4%), fungal infections 9 (14.8%), benign tumours 8 (13.1%), urticaria in 7 (11.5%) and eczemas 7 (11.5%). There was no statistical significance between age and dermatologic diagnosis and also no significance between dermatoses and comorbidities. *Conclusion:* The findings showed that papulosquamous disorders and fungal infections were common, and females were more affected. Women had more papulosquamous disorders and eczema, while men had more fungal infections. There was no significance between age and dermatologic diagnosis, and dermatoses and comorbidities.

Keywords: Geriatric, Skin Diseases, Dermatology Clinic

1. Introduction

The number of older adults, is on the increase due to an improvement in the standard of living. As at 2019, there were about 700 million persons aged 60 years and above [1]. In 2050 it is expected to rise up to 2 billion [1]. Thus those at this age and older would constitute one-fifth of the world's human population. [1] Elderly persons in Sub-Saharan Africa are escalating from an estimate of 43 million in 2010 to almost four times this number in another forty years [2]. The skin is the largest organ in the body measuring 1.67m^2 in an average adult and weighs around 4-5kg [3], so it is therefore the organ that aging would be most apparent. The United Nations has agreed that 65+ years may be denoted as old age and this is the first attempt at an international definition of old age. [4] Aging of the skin is a function of the intrinsic process of senescence modulated by environmental factors like, chronic exposure to ultraviolet radiation of the sun and hormonal changes like menopause in women [5]. This is now compounded by the increase of zoot in the atmosphere in the Niger Delta area especially PortHarcourt. Intrinsic skin ageing results from getting older and is mainly due to the effect of reactive oxygen species (ROS) [6] There is a decrease in the creation of mast cells, fibroblasts and collagen, and a wearing out of the junction between the epidermis and dermis. Intrinsically aged skin is flawless, smooth, pale, dry and less elastic with fine wrinkles.

Extrinsic skin ageing is caused by environmental factors such as:

1) Smoking;
2) Diet;
3) Exposure to chemicals;
4) Trauma;
5) Exposure to UV radiation (photoageing).

Such factors have been shown to stimulate ROS production and generate oxidative stress [8]. This may be compounded by the degradation of petroleum products that cause zoot in this environment,

The greatest cause of extrinsic ageing is the cumulative effect of unprotected exposure to UV radiation; a significant

proportion of facial skin ageing is due to low-grade chronic UV exposure [9]. On the other hand, extrinsically aged skin is rough and portrayed by coarse and deep wrinkling, telangiectasia (spider veins), irregular or mottled pigmentation, a sallow or yellow complexion and a loss of elasticity [10]. Extrinsic skin ageing is more severe in fairer skin than dark skin, the skin type is very important. [11]. With age, there is a substantial loss of melanocytes and Langerhans cells [11].

An additional effect of ageing, is the epidermis atrophies because we produce fewer cells, cell production decreases by up to 50% between our 20s and our 70s [12].

With increasing age, there is a loss of dermal volume, and dermal thickness decreases by about 20%. There is a 50% decrease in the number of mast cells and a 60% decrease in blood flow [12]. The collagen content of the dermis decreases by 1% per year throughout adult life [12]. Collagen changes from well-organised bundles of fibres in young skin to fragmented and disorganized fibres in older skin; it also loses its interwoven extensions with elastin fibres, which gives the skin the ability to regain its shape after deformation. [5]. The barrier function of the stratum corneum keeps the skin from drying out; although it does not become thinner with age, it is not replaced as quickly, so skin is increasingly rough and dry Extreme skin dryness (xerosis) can be seen in ageing skin, and this brings about an increased susceptibility to irritant dermatitis [10]. As mitosis in the basal layer of the epidermis is slowed down, healing takes more time. As the skin ages, the vasculature progressively atrophies. The supporting dermis also deteriorates with collagen and elastin fibres becoming sparse and increasingly disordered [13]. These changes leave the elderly increasingly susceptible to both vascular disorders such as stasis dermatitis and skin injuries such as pressure ulcers and skin tears, with a steadily decreasing ability to effect skin repair [13]. Features of aged skin includes, wrinkles, sagging of skin, xerosis with asteatotic eczema, decrease in density and dryness of hair, greying of hair, slow growth of nails with brittleness, increase of benign skin lesions eg seborrhoeic keratosis, solar lentigos, senile purpura, liver spots, cherry angiomas with increased risk of skin cancers. [5] This study aims to document the spectrum of skin disorders and the frequency of occurrence in elderly patients who attended a private dermatology clinic in Portharcourt, Rivers-State between January 2011 and December 2020.

2. Materials and Methods

2.1. Study Area

The study was conducted in Portharcourt, the capital of Rivers State, South-South geopolitical zone of Nigeria.

2.2. Study Design and Study Population

A retrospective study involving elderly patients aged 65 years and above, diagnosed with skin disease.

Sample size calculation: Using the RightSize software, a sample size of 61 elderly patients was obtained based on the 95% confidence limits, proportion of skin disorders of 36% from a similar study in the Niger-Delta region [14] and precision level of 12%.

Data analysis: Data were entered in Microsoft Excel and then exported to the Statistical Package of Social Sciences (SPSS) version 21 for statistical analysis. Data on socio-demographic and dermatological findings were displayed using tables and charts. Numerical data were summarized using means and standard deviation. Fisher's exact test was used to determine significant differences in proportions of demographic characteristics (age and sex) by the disorders. A p-value of less than 0.05 was considered statistically significant.

3. Results

One thousand, eight hundred and sixty-four (1,864) patients were seen at a private dermatology outpatient clinic during the study period. Sixty-one patients (3.27%) were 65 years old and above. The age range was 65 to 94 years, with a mean age of 71.11± 6.49. There were more females, 37 patients (61.7%), and 24 patients (39.3%) were males, giving a male to female ratio of 1:1.5. The largest number of patients 50 (80%) presented between the ages of 65 and 74 years. Table 1 shows the socio-demographic characteristics of the study population.

Table 1. *Socio-demographic characteristics of the study population.*

Variables (n=61)	Frequency n	Percentage %
Age group (years)		
65-74	50	82.0
75-84	7	11.5
85-94	4	6.6
Sex		
Male	24	39.3
Female	37	60.7

Thirty dermatoses were documented in this group of patients. The five commonest skin disorders were papulosquamous disorders in 10 patients (16.4%), fungal infections in 9 patients (14.8%) benign tumours in 8 patients (13.1%) urticaria in 7 patients (11.5%), eczemas in 7 patients (11.5%), others were adverse cutaneous drug eruptions, viral infections, inflammatory disorders, autoimmune disorders, post bleaching syndrome, parasitic infection and an oral disorder, as seen in Figure 1.

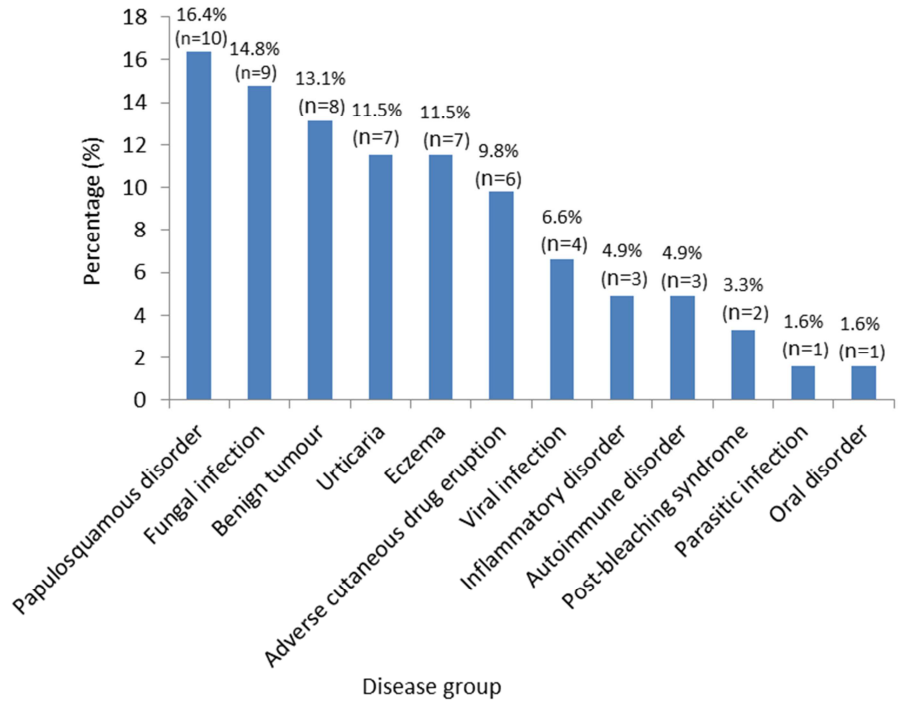

Figure 1. *Showing dermatological disorders.*

The commonest infection seen in the elderly patients were fungal infections in 9 patients (14.8%), followed by a viral infection in 4 patients (6.6%) and parasitic infections in 1 (1,6%) as shown in Figure 1.

Prevalence of Comorbidities

Patients with hypertension were 14 (23%) in number, those with both hypertension and diabetes were 5 (8.1%), making a total of 19 (31.1%), while those without comorbidity were more in number 42 (68.9%), as shown in Table 2.

Table 2. *Showing distribution of Comorbidity Status.*

Co-morbidity	Frequency n	Percentage %
With Comorbidity	19	31.1
Without Comorbidity	42	68.9
Total	61	100.0

3.1. Socio-demographic Characteristics Versus Dermatologic Diagnostic Category.

The age range of 65-74 has the greatest number of dermatoses 50 (81.9%), with more having papulosquamous disorders and fungal infections.

There is no statistical significance between age and dermatologic diagnosis. *Fisher's exact = 15.008; p-value =0.987* There were more women in the study 37 (60.7%), with 7 each having eczemas and papulosquamous disorders. Men were 24 with more men having fungal infections.

There is no statistical significance between sex and dermatologic diagnosis.

Fisher's exact = 13.371; p-value =0.213, as seen in Table 3.

Table 3. *Showing-- Socio-demographic Characteristics Versus Dermatologic Diagnostic Category.*

Variable (N=61)	Dermatologic Diagnostic Category						
	Adverse cutaneous drug eruption	Autoimmune disorder	Benign tumour	Eczema	Fungal infection	Inflammatory disorder	Oral disorder
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age (years)							
65 – 74	5 (10.0)	2 (4.0)	5 (10.0)	6 (12.0)	8 (16.0)	3 (6.00)	1 (2.0)
75 – 84	1 (14.3)	1 (14.3)	2 (28.6	1 (14.3)	0 (0.0)	0 (0.0)	0 (0.0)
85 – 94	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)	1 (25.0)	0 (0.0)	0 (0.0)
Fisher's exact = 15.008; p-value =0.987							
Sex							
Female	3 (8.1)	2 (5.4)	4 (10.8)	7 (18.9)	3 (8.1)	1 (2.7)	0 (0.0)
male	3 (12.5)	1 (4.2)	4 (16.7)	0 (0.0)	6 (25.0)	2 (8.3)	1 (4.2)
Fisher's exact = 13.371; p-value =0.213							

Table 3. *Continued.*

Variable (N=61)	Dermatologic Diagnostic Category					
	Papulosquamous disorder	**Parasitic infection**	**Post-bleaching syndrome**	**Urticaria**	**Viral infection**	**Total**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Age (years)						
65 – 74	8 (16.0)	1 (2.0)	2 (4.0)	5 (10.0)	4 (8.0)	50 (100.0)
75 – 84	1 (14.3)	0 (0.0)	0 (0.0)	1 (14.3)	0 (0.0)	7 (100.0)
85 – 94	1 (25.0)	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)	4 (100.0)
Fisher's exact = 15.008; p-value =0.987						
Sex						
Female	7 (18.9)	1 (2.7)	2 (5.4)	5 (13.5)	2 (5.4)	37 (100.0)
male	3 (12.5)	0 (0.0)	0 (0.0)	2 (8.3)	2 (8.3)	24 (100.0)
Fisher's exact = 13.371; p-value =0.213						

3.2. Comorbidity Status Versus Dermatologic Diagnostic Category

Patients with dermatoses that had comorbidities were 19 (31.1%), while those without comorbidities were 42 (68.9%). There was no statistical significance.

Fisher's exact = 9.729; p-value =0.55 as seen in Table 4.

Table 4. *Shows comorbidity status Versus Dermatologic Diagnostic Category.*

Variable (N=61)	Dermatologic Diagnostic Category						
	Adverse cutaneous drug eruption	**Autoimmune disorder**	**Benign tumour**	**Eczema**	**Fungal infection**	**Inflammatory disorder**	**Oral disorder**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
With comorbidity	3 (15.8)	1 (5.3)	1 (5.3)	3 (15.8)	3 (15.8)	1 (5.3)	0 (0.0)
Without comorbidity	3 (7.1)	2 (4.8)	7 (16.7)	4 (9.5)	6 (14.3)	2 (4.8)	1 (2.4)

Table 4. *Continued.*

Variable (N=61)	Dermatologic Diagnostic Category					
	Papulosquamous disorder	**Parasitic infection**	**Post-bleaching syndrome**	**Urticaria**	**Viral infection**	**Total**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
With comorbidity	1 (5.3)	1 (5.3)	0 (0.0)	3 (15.8)	2 (10.5)	19 (100.0)
Without comorbidity	9 (21.4)	0 (0.0)	2 (4.8)	4 (9.5)	2 (4.8)	42 (100.0)

Fisher's exact = 9.729; p-value =0.555

4. Discussion

This study done on the scope of skin diseases in the geriatric population of a private dermatology clinic, in south-south Nigeria had a prevalence of 3.3%. This is higher than a study done in Cote d Ivoire with a prevalence of 1.8% [15] and similar to another study done in Portharcourt with a prevalence of 3.1%[16] and Lagos at 4.8%.[17] This study had a mean of 71.11 ± 6.49 which corroborates with a Portharcourt study [16] with a mean of 67.1 ±7.5 and a study done by Ayanlowo in Lagos with a mean of 66.84. [17] Most patients were within the age bracket of 65-74 years, (80%) which is similar to another study done in a tertiary hospital in Portharcourt that had the majority of patients within that age range. [18]

The male to female ratio was 1: 1.5 which was similar to the Lagos study. [17] A total of 30 dermatoses were seen and classified into 12 disorders. The 5 commonest disorders were papulosquamous 10 (16.4%), fungal infection 9 (14.8%), benign tumours 8 (13.1%), urticaria 7 (11.5%), eczemas 7 (11.5%) and the others were adverse cutaneous drug eruptions, viral infections, inflammatory disorders, post bleaching syndrome, parasitic infection and oral disorder. Papulosquamous disorders were also the commonest disorders in a study done in a primary care clinic in India, followed by infections and infestations then senile pruritus. [19] This is contrary to studies done in Cote de Voire, Lagos and Portharcourt that had infections as their commonest manifestations. [15, 17, 18]. This could be due to the humid weather in these areas as well as the larger sample sizes used in these studies, done in tertiary hospitals.

Also, this study was done in a private hospital in an urban area, so the patients could be more elite so which may account for the lower prevalence of infections. A more cosmopolitan way of life and environment may also be associated with the preponderance of papulosquamous disorders in this study. Men had more fungal infections while women had more papulosquamous disorders, there was no statistical significance. A study in PortHarcourt also had men having more fungal infections and women post-bleaching syndrome, it was statistically significant. [16] The greater occurrence of fungal infections in men may be because men tend to sweat more as they tend to do more strenuous work than women. Patients with comorbidities in this study had

hypertension 14 (23%), while those with both hypertension and diabetes were 5 (8.1%), making a total of 19 (31%), while those without comorbidity were more in number 42 (68.9%). This was not statistically significant. Patients with dermatoses that had comorbidities were 19 (31.1%), while those without comorbidities were 42 (68.9%). There was no statistical significance. A study by Otike-Odibi et al [16] showed patients with 4-5 comorbidities had significantly higher idiopathic guttate hypomelanosis.

5. Conclusion

Most patients were within the age range of 65-74 years. Papulosquamous disorders and fungal infections are a major cause of dermatoses, in the geriatric population in Port Harcourt. Women had more papulosquamous disorders and eczema, while men had more fungal infections. This was not significant. There was no significant association between dermatoses and comorbidities. Accurate and prompt diagnosis and treatment of these disorders would improve the quality of life of geriatric patients.

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