Available online at www.worldscientificnews.com

World Scientific News

An International Scientific Journal

WSN 201 (2025) 222-245 EISSN 2392-2192

Assessment of the Prevalence and Management of Skin Diseases Encountered by Community Pharmacists in Owerri, Imo State, Nigeria

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ABSTRACT

Skin diseases vary greatly in symptoms and severity and can be temporarily or permanent. Some have situational causes and others may be genetic. Skin diseases are very common among the populations in many developing countries, they have not been regarded as a significant problem that could benefit from public health measures. While most skin disease are minor, others can indicate a more serious issue. Here in this study, we assessed the prevalence and management of skin diseases encountered by community pharmacist in Owerri, Imo State, Nigeria. A simulated case-based cross-sectional study was conducted among community pharmacist in Owerri urban, a structured questionnaire was organized to collect the information needed. This study was carried out in registered pharmacies in Owerri urban (Owerri municipal) in Imo State. From our result, we observed that Acne had the highest number of occurrences in the patients as indicated by the community pharmacists. However, 51 occurrences were Acne related, with 47 Eczema cases, 29 Dermatitis cases, 11 Urticaria cases and 0 Vitiligo, Psoriasis, and others skin diseases respectively. 23.29% of the male community pharmacists that often-used tablets as a management method for skin diseases and another 6.85% who very often use this management method strongly agreed to be satisfied with the outcome of the tablet method of managing skin diseases. On the other hand, 26.09% of the female community pharmacist who often used and another 17.39% who very often used the tablet management method strongly agreed to be satisfied with the outcome of the tablet method of managing skin diseases.

***Keywords**:* prevalence; management; skin diseases.

(Received 10 January 2025; Accepted 20 February 2025; Date of Publication 11 March 2025)

1. INTODUCTION

While skin diseases are very common among the populations in many developing countries, they have not been regarded as a significant problem that could benefit from public health measures. Indeed, more attention is frequently given to some less common health problems in the same countries. This attitude is due to the assumption that skin diseases are a benign, not life-threatening minor nuisance, and that they do not merit measures that may appear out of proportion to their low priority. However, at least in some countries, there seems to be a high demand by patients and healthcare workers for more consideration to be given to skin diseases. The skin is the largest organ of the body. It is, in terms of both weight - between 6 and 9 pounds and surface area (about 2 square yards). Your skin separates the inside of your body from the outside world. It protects you from bacteria and viruses and regulates your body temperature.

Skin disease is one of the most common human illnesses. It pervades all cultures, occurs at all ages, and affects between 30% and 70% of individuals, with even higher rates in at-risk subpopulations (NHANES, 1978; Bickers et al., 2006; Scholeld et al., 2009; Hay and Fuller, 2012). 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). The International Classification of Disease 10 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. Yet despite this profound impact, skin disease continues to receive relatively little attention in the national or global health debate. Previous attempts have been made to estimate the prevalence and health impact of skin diseases (Murray and Lopez, 1996; Global Burden of Disease, 2008) but these have relied on epidemiological studies, analytical methods, and disability weighting, which had flaws (Salomon, 2010).

In assigning health priorities, skin diseases are sometimes thought of, in planning terms, as small- time players in the global league of illness compared with diseases that cause significant mortality, such as HIV/AIDS, community-acquired pneumonias, and tuberculosis. However, skin problems are generally among the most common diseases seen in primary care settings in tropical areas, and in some regions where transmissible diseases such as tinea imbricata or onchocerciasis are endemic, they become the dominant presentation. For instance, the World Health Organization's 2001 report (WHO 2005) on the global burden of disease indicated that skin diseases were associated with mortality rates of 20,000 in Sub-Saharan Africa in 2001.This burden was comparable to mortality rates attributed to meningitis, hepatitis B, obstructed labor, and rheumatic heart disease in the same region. Using a comparative assessment of disability-adjusted life years (DALYs) from the same report, the World Health Organization recorded an estimated total of 896,000 DALYs for the region in the same year, similar to that attributed to gout, endocrine disease, panic disorders, and war-related injuries. As noted later, those figures require confirmation by more detailed studies, and their practical application to health interventions needs to be tested. Assessing the impact of skin disease on the quality of life in comparison with that of chronic non- dermatological diseases is difficult; however, the study by Mallon and others (1999), which was not carried out in a developing country, compares the common skin disease acne with chronic disorders such as asthma, diabetes, and arthritis and finds comparable deficits in objective measurements of life quality. Skin disease related to HIV, which may constitute an important component of the skin disease burden in developing countries, particularly in Sub-Saharan Africa, leads to a similar impact on life quality compared with non-HIV-related skin problems, although the use of antiretroviral therapy significantly improves quality of life (Mirmirani and others 2002). Those findings indicate that skin diseases have a significant impact on quality of life.

Although mortality rates are generally lower than for other conditions, people's needs for effective remedies for skin conditions should be met for a number of important reasons: first, skin diseases are so common and patients present in such large numbers in primary care settings that ignoring them is not a viable option. Children, in particular, tend to be affected, adding to the burden of disease among an already vulnerable group. Second, morbidity is significant through disfigurement, disability, or symptoms such as intractable itch, as is the reduction in quality of life. For instance, the morbidity from secondary cellulitis in lymphatic filariasis, which may lead to progressive limb enlargement, is severe, and subsequent immobility contributes to social isolation. Third, the relative economic cost to families of treating even trivial skin complaints limits the uptake of therapies. Generally, families must meet such costs from an overstretched household budget, and such expenses in turn reduce the capacity to purchase such items as essential foods (Hay et.al,1994). And fourth, screening the skin for signs of disease is an important strategy for a wide range of illnesses, such as leprosy, yet a basic knowledge of the simple features of disease whose presenting signs occur in the skin is often lacking at the primary care level. Furthermore, shortage of elementary skills in the management of skin diseases is a further confounding problem.

A number of studies assessing success in the management of skin diseases in primary care settings in the developing world find that treatment failure rates of more than 80 percent are common (Figueroa and others 1998; Hiletework, 1998). An additional point, often overlooked, is that skin diseases in the developing world are often transmissible and contagious but are readily treatable (Mahé, Thiam N'Diaye, and Bobin 1997). A number of common diseases account for the vast majority of the skin disease burden; therefore, implementing effective treatments targeted at those conditions results in significant gains for both personal and public health. Even where eradication is impossible, control measures may be important in reducing the burden of illness; yet few systematic attempts have been made to validate control programs for skin diseases as public health interventions.

According to the Global Burden of Disease (GBD) Study of 2010, the estimated GBD attributable categories of skin diseases are broadly divided into 15 categories from 1990 to 2010 for 187 countries (Hays, et al., 2013). For each of the following diseases, we performed systematic literature reviews and analyzed resulting data: eczema, psoriasis, acne vulgaris, pruritus, alopecia areata, decubitus ulcer, urticaria, scabies, fungal skin diseases, impetigo, abscess, and other bacterial skin diseases, cellulitis, viral warts, molluscum contagiosum, and non-melanoma skin cancer. We used disability estimates to determine nonfatal burden. Three skin conditions, fungal skin diseases, other skin and subcutaneous diseases, and acne were in the top 10 most prevalent diseases worldwide in 2010, and eight fell into the top 50; these additional five skin problems were pruritus, eczema, impetigo, scabies, and molluscum contagiosum. Collectively, skin conditions ranged from the 2nd to 11th leading cause of years lived with disability at the country level. At the global level, skin conditions were the fourth leading cause of nonfatal disease burden. Using more data than has been used previously, the burden due to these diseases is enormous in both high-and low-income countries. These results argue strongly to include skin disease prevention and treatment in future global health strategies as a matter of urgency.

More so, skin diseases account for a huge burden in the global context of health. Collectively, skin conditions were the 4th leading cause of non-fatal burden expressed as years lost due to disability in 2010; taking into account health loss due to premature death expressed as disability-adjusted life years (DALYs), skin remains the 18th leading cause of health burden worldwide.

The key prevalence findings include: Three skin conditions were in the top 10 most prevalent diseases globally in 2010—fungal skin diseases (4th global prevalence = 984,290,432), other skin and stress subcutaneous diseases (5th), and acne vulgaris (8th global prevalence = 645,499,136; Vos et al., 2012).

There are further skin diseases in the top 50 most common causes of disease— pruritus (global prevalence=279,889,120), eczema (global prevalence = 229,761,000), impetigo (global prevalence =140,495,000), molluscum contagiosum/warts (global prevalence = 122,601,000), and scabies (global prevalence¼ 100,625,000). Previously reported GBD estimated annual deaths for skin disease included 66.5103 from bacterial skin infections such as cellulitis and 30.6103 from NMSC (Lozano et al., 2012).

In another study, the disability due to skin disease were collectively ranged from being the 2nd to 11th leading cause of years lived with disability at the country level for 2010; they range from 3rd to 28th, taking into account premature deaths. Singapore, Brunei, Hungary, and Sudan experienced the most nonfatal skin disease burden per capita in both 1990 and 2010, and Albania, Lithuania, Romania, and Indonesia the least. Across specific causes, ages, and regions, burden is higher among females. Rates differ substantially by cause across regions: western Europe has the highest prevalence rate for pruritus but the lowest for scabies and eastern sub-Saharan Africa has the highest rates of cellulitis, fungal skin disease, and viral warts but the lowest rates of urticaria. The burden of skin conditions, notably acne vulgaris and decubitus ulcer, show marked age patterns. The DALY is a measure of health loss taking into account both nonfatal and fatal health burden (Salomon et al., 2012). The leading cause of skin condition DALYs is eczema, when looking across countries, ages, sex, and time because of the combined high prevalence across geographies and population and relatively high average disability weight.

According to two recent studies involving Japanese adults, the prevalence of male adults in their 20s was 5.7% and 4.9% (Saki et. al, 2006; Saeki et.al., 2009). Although those who have severe atopic dermatitis are exempted from military duty, there are still many soldiers who suffer from atopic dermatitis. The prevalence of atopic dermatitis significantly correlated with the scale (P=0.003). Moreover, atopic dermatitis was the most troublesome skin dis-ease with respect to symptoms and function. The prevalence of seborrheic dermatitis was 2.1% in the current study, which was similar to the general population (1%-3%) (Gupta & Bluhm, 2004). The occurrence of seborrheic dermatitis also correlated with the amount of stress reported (P=0.003), and this disease significantly influenced the daily lives of soldiers functionally and emotionally. In addition, contact dermatitis (1.7%) and hand dermatitis (1.6%) were not rare in army personnel. Viral warts and corns were also very common problems in military personnel, and the point prevalence were 4.7% and 3.0%, respectively. Interestingly, the prevalence of viral warts increased significantly with increasing rank (P=0.006); the high prevalence might be due to sharing common living places and bathing facilities, factors also implicated in tinea pedis. The prevalence of corns increased marginally significantly with the period of service (P = 0.085), and we suggest that this condition is related with poor fitting footwear and frequent military marches. There were many other skin conditions detected during the examinations, but most of the skin conditions did not occur in sufficient numbers to show a true prevalence. The prevalence of transient skin diseases, such as acute urticaria and insect bite allergies, might be underestimated because of the short duration of symptoms. In contrast, seasonal skin diseases, such as frostbite, would also be underestimated due to the times the examinations were conducted. Korean military service is compulsory; therefore, studies of people in the military service may provide some information about the general population if the sample population is corrected with respect to age and gender distributions. However, patients who are exempted from military service due to severe skin diseases, such as atopic dermatitis and psoriasis, were not included in this study, and this could be a major limitation in applying the results of our study to the general population.

Army life has some unique characteristics, such as a ranked society and communal living, and we earnestly desire to reveal the influence of these factors on skin diseases. In conclusion, we suggest the prevalence of skin diseases among military personnel in Korea is very high and some of the skin diseases have a significant influence on daily life. Thus, the military authorities should be aware of common skin diseases and prepare countermeasures.

Skin disease causes a huge burden in the global context of health. Collectively, skin conditions were the 4th leading cause of nonfatal burden expressed as years lost due to disability in 2010; taking into account health loss due to premature death expressed as disability-adjusted life years (DALYs), skin remains the 18th leading cause of health burden worldwide. It is also observed that skin conditions are not only caused by fungal, bacterial, or parasitic infection but also by unhealthy lifestyle like; uncontrolled stress, lack of exercise, lack of sleep, smoking. Skin diseases can also aggravate or caused by environmental factors such as climate, sun exposure, environment, skin product.

Here in this study, we assessed the prevalence and management of skin diseases encountered by community pharmacist in Owerri, Imo State, in order to evaluate the occurrence of skin diseases and how effectively they are being managed by community pharmacist in Owerri urban, and then determine the prevalence of skin diseases and the most prevalent skin condition in the region. We also ascertained the application of pharmaceutical care and possible drug therapy problems, the dosage form/ management procedures that are frequently used in the treatment of skin diseases to know the management outcomes and evaluate the various risk factors and causes of skin diseases.

2. METHODS

This is a cross sectional descriptive study on the Assessment of the prevalence and management of skin diseases encountered by community pharmacist in Owerri in Imo state.

Community pharmacist in Owerri, Imo state were used to assess the prevalence and management of skin diseases in the region. Owerri is the capital of Imo State, Nigeria, set in the heart of Igboland. It has an estimated population of about 1.4million as of 2016 and is approximately 100 square kilometers in area.

2.1. Questionnaire Development

This research was done with a questionnaire containing 51 items. Different sections were developed to address the objectives of the study. The first section collected demographic data of the respondent. The second section collected data on the prevalence of skin diseases, while the third and fourth section collected data on the management, causes, and risk factors of the diseases. The questionnaire was validated by clinical pharmacists/lecturers.

2.2. Data Collection and Analysis

A convenient sampling method was adopted in which community pharmacist in Owerri, imo state were randomly sampled. The data generated from the questionnaire was statistically analyzed using statistical package for social sciences (SPSS) versions 21. results were presented as frequencies and percentages of the variables. Descriptive statistics such as mean, percentage as well as inferential statistical analysis were conducted. Pre-tested and validated structured questionnaire were administered to community pharmacist after seeking their consent. questionnaire included questions related to demographics, prevalence and management of skin diseases encountered by community pharmacist.

3. RESULTS AND DISCUSSION

3.1. Demographics

Table 3.1shows that 76.04% of the community pharmacists in Owerri are male while 23.96% are females. In Table 3.2, 58.33% of the community pharmacists are aged between 21-30 years, followed by those between 31-40 years (33.3%), 4.17% were aged 41-50 years and 61 years and above respectively. Table 3.3 shows that most of the community pharmacists are not married, about 70.53% of them are singles and the remaining 29.47% are married. Most of the community pharmacists are B. Pharm holders, 83.33%, with 11.46% been FPC Pharm/M. Pharm holders, and the remaining 5.21% are PhD holders in pharmacy – shown in table 3.4 below. However, there were more community pharmacist who have been practicing for 1-10 years and 4.35% of them have been in practice for 11.20 years and 31 – 40 years respectively.

Table 3.1. Gender of the Community Pharmacists.

Gender	Frequency	%
Male	73	76.0
Female	23	24.0
Total	96	100.0
Total	**100**	

Table 3.2. Age distribution of the Community Pharmacist.

	Frequency	%
21-30 years	56	58.3
31-40 years	32	33.3
41-50 years	4	4.2
61 and above	4	4.2
Total	**100**	

Table 3.3. Marital status of the Community Pharmacists.

	Frequency	%	%
Single	67	67.0	70.5
Married	28	28.0	29.5
Total	95	95.0	100.0
Total	**100**	**100.0**	

Table 3.4. Highest educational qualification of community pharmacists.

	Frequency	%
B. Pharm	80	83.3
FPC Pharm/M. Pharm	11	11.5
PhD	5	5.2
Total	96	100.0
Total	**100**	

Table 3.5. Years of experience of community pharmacists.

	Frequency	%
1-10 years	84	91.3
11-20years	4	4.3
31-40 years	4	4.3
Total	**100**	

Table 3.6 shows that in the treatment and management of the skin disease, several dosage forms were used to using the topical creams, lotions, and ointments (70%), 27% often make us of this management patter. It was followed by 55% very often usage and 29% were using the counselling as a management method. Tables were indicated to show values entered by the management method, 26% used it very often, and 73% often make use of tablets as management method used. In table 3.7, 47% and 22% of the community pharmacist indicated that they were satisfied with the management method used and its outcome. Another 9% and 10% of the overall community pharmacists were not included.

Table 3.11 shows that bacterial and fungal infections have the highest frequency of causes of skin diseases with 96% and 97% respectively. Furthermore, genetics as a risk factor is not fully certified, that is to say it is not a strong risk factor, as 55% of the community pharmacist are confused if it is or not a risk factor. 71% of the community pharmacist agree that environmental factors are risk factors to skin disease. Additionally, most them believe food and water intake (84%) and climatic factors (90%) are risk factors also. Most of the community pharmacist disagreed with the fact that alcohol (49%) and stress (31%) are strong risk factors.

On prevalence, **table 3.13** shows that Acne had the highest number of occurrences in the patients as indicated by the community pharmacists. However, 51 occurrences were Acne related, with 47 Eczema cases, 29 Dermatitis cases, 11 Urticaria cases and 0 Vitiligo, Psoriasis, and others skin diseases respectively.

Table 3.14 shows that there is a positive relationship between the community pharmacists' experience and the effect of skin diseases on patients' health condition. Although, there is a statistical significance between this relationship at .001 significance. More so, table 3.14b also shows that the relationship between the community pharmacists' experience and the effect of skin diseases on patients' health lifestyle is statistically significant. Although, there is a statistical significance between this relationship at .001 significance.

Table 3.6. Table showing frequently used dosage forms/management procedures by the community pharmacists.

Management method used	Very rarely (%)	Rarely (%)	Not Sure (%)	Often (%)	Very often (%)	TOTAL (%)
1. **Topical creams, lotions, and ointments**	0 (0.0)	0 (0.0)	3 (3.0)	27 (27.0)	70 (70.0)	**100**
2. **Tablets**	1 (1.0)	0 (0.0)	0 (0.0)	73 (73.0)	26 (26.0)	**100**
3. **Injectables**	8 (8.0)	38 (38.0)	7 (7.0)	32 (32.0)	15 (15.0)	**100**
4. **Counselling**	5 (5.1)	5 (5.1)	4 (4.1)	29 (29.6)	55 (56.1)	**98**
5. **Referrals**	4 (4.0)	34 (34.0)	5 (5.0)	23 (23.0)	34 (34.0)	**100**

Table 3.7. Table showing the outcome of the frequently used management method based on the highest educational qualification of the community pharmacist, gender-wise.

			Highest Educational Qualification			
Gender of Pharmacist			B. Pharm (%)	FPC Pharm/M. Pharm (%)	PhD (%)	Total
Male	Are you usually satisfied with the outcome of your management procedure?	Not sure	4 (5.5)	0 (0.0)	0 (0.0)	4
		Agree	35 (47.9)	8 (11.0)	4 (5.5)	47
		Strongly agree	18 (24.7)	3 (4.1)	1 (1.4)	22
	Total		57 (78.1)	11 (15.1)	5 (6.8)	73
Female	Are you usually satisfied with the outcome of your management procedure?	Not sure	4 (17.4)	0 (0.0)	0 (0.0)	4
		Agree	9 (39.1)	0 (0.0)	0 (0.0)	9
		Strongly agree	10 (43.5)	0 (0.0)	0 (0.0)	10
	Total		23 (100.0)	0 (0.0)	0 (0.0)	0
Total	Are you usually satisfied with the outcome of your management procedure?	Not sure	8 (8.3)	0 (0.0)	0 (0.0)	8
		Agree	44 (45.8)	8 (8.3)	4 (4.2)	56
		Strongly agree	28 (29.2)	3 (3.1)	1 (1.0)	32
	Total		80 (83.3)	11 (11.5)	5 (5.2)	96

Table 3.8. Showing the management outcome based on years of experience for usage of referral method as a dosage form for skin diseases.

			Are you usually satisfied with the outcome of your management procedure?			Total
Years of experience			Not sure (%)	Agree (%)	Strongly agree (%)	
1-10 years	How frequent do you use referrals as a management method?	Very rare	0 (0.0)	1 (1.2)	3 (3.6)	4
		Rarely	0 (0.0)	16 (19.0)	13 (15.5)	29
		Not sure	5 (6.0)	0 (0.0)	0 (0.0)	5
		Often	3 (3.6)	12 (14.3)	0 (0.0)	15
		Very often	0 (0.0)	23 (27.4)	8 (9.5)	31
	Total		8 (9.5)	52 (61.9)	24 (28.6)	84
11-20years	How frequent do you use referrals as a management method?	Rarely	0(0.0)	1 (25.0)	0 (0.0)	1
		Very often	0 (0.0)	3 (75.0)	0 (0.0)	3

	Total		0 (0.0)	4 (100.0)	0 (0.0)	4
31-40 years	How frequent do you use referrals as a management method?	Often	0 (0.0)	0 (0.0)	4 (100.0)	4
	Total		0 (0.0)	0 (0.0)	4 (100.0)	4
Total	How frequent do you use referrals as a management method?	Very rare	0 (0.0)	1 (1.1)	3 (3.3)	4
		Rarely	0 (0.0)	17 (18.5)	13 (14.1)	30
		Not sure	5 (5.4)	0 (0.0)	0 (0.0)	5
		Often	3 (3.3)	12 (13.0)	4 (4.3)	19
		Very often	0 (0.0)	26 (28.3)	8 (8.7)	34
	Total		8 (8.7)	56 (60.9)	28 (30.4)	92

Table 3.9. Showing the management outcome based on years of experience for usage of tablets as a dosage form for skin diseases treatment.

			Are you usually satisfied with the outcome of your management procedure?			
Years of experience			**Not sure (%)**	**Agree (%)**	**Strongly agree (%)**	**Total**
1-10 years	**How frequent do you use tablets as a management method?**	**Very rare**	0 (0.0)	1 (1.2)	0 (0.0)	1
			0.0%	1.2%	0.0%	1.2%
		Often	8 (9.5)	39 (46.4)	19 (22.6)	66
			9.5%	46.4%	22.6%	78.6%
		Very often	0 (0.0)	12 (14.3)	5 (6.0)	17
			0.0%	14.3%	6.0%	20.2%
	Total		8 (9.5)	52 (61.9)	24 (28.6)	84
			9.5%	61.9%	28.6%	100.0%
11-20years	**How frequent do you use tablets as a management method?**	**Often**	0 (0.0)	3 (75.0)	0 (0.0)	3
			0.0%	75.0%	0.0%	75.0%
		Very often	0 (0.0)	1 (25.0)	0 (0.0)	1
			0.0%	25.0%	0.0%	25.0%
	Total		0 (0.0)	0 (0.0)	0 (0.0)	0
			0.0%	0.0%	0.0%	0.0%
31-40 years	**How frequent do you use tablets as a management method?**	**Often**	0 (0.0)	0 (0.0)	4 (100.0)	4
			0.0%	0.0%	100.0%	100.0%
	Total		0 (0.0)	0 (0.0)	4 (100.0)	4
			0.0%	0.0%	100.0%	100.0%
Total		**Very rare**	0 (0.0)	1 (1.1)	0 (0.0)	1

How frequent do you use tablets as a management method?		0.0%	1.1%	0.0%	1.1%
	Often	8 (8.7)	42 (45.7)	23 (25.0)	73
		8.7%	45.7%	25.0%	79.3%
	Very often	0 (0.0)	13 (14.1)	5 (5.4)	18
		0.0%	14.1%	5.4%	19.6%
Total		8 (8.7)	56 (60.9)	28 (30.4)	92
		8.7%	60.9%	30.4%	100.0%

Table 3.10. Showing the management outcome based on gender for usage of injectables as a management method for skin diseases.

Crosstab						
			Are you usually satisfied with the outcome of your management procedure?			
Years of experience			Not sure	Agree	Strongly agree	Total
1-10 years	How frequent do you use injectables as a management method?	Very rare	1 (1.2)	2 (2.4)	1 (1.2)	4
		Rarely	3 (3.6)	21 (25.0)	12 (14.3)	36
		Not sure	0 (0.0)	7 (8.3)	0 (0.0)	7
		Often	4 (4.8)	16 (19.0)	7 (8.3)	27
		Very often	0 (0.0)	6 (7.1)	4 (4.8)	10
	Total		8 (9.5)	52 (61.9)	24 (28.6)	84
11-20years	How frequent do you use injectables as a management method?	Rarely	0 (0.0)	2 (50.0)	0 (0.0)	2
		Often	0 (0.0)	1 (25.0)	0 (0.0)	1
		Very often	0 (0.0)	1 (25.0)	0 (0.0)	1
	Total		0 (0.0)	4 (100.0)	0 (0.0)	4
31-40 years	How frequent do you use injectables as a management method?	Very rare	0 (0.0)	0 (0.0)	4 (100.0)	4
	Total		0 (0.0)	0 (0.0)	4 (100.0)	4
			0.0%	0.0%	100.0%	100.0%
Total	How frequent do you use injectables as a management method?	Very rare	1 (1.1)	2 (2.2)	5 (5.4)	8
		Rarely	3 (3.3)	23 (25.0)	12 (13.0)	38
		Not sure	0 (0.0)	7 (7.0)	0 (0.0)	7
		Often	4 (4.3)	17 (18.5)	7 (7.6)	28
		Very often	0 (0.0)	7 (7.6)	4 (4.3)	11
	Total		8 (8.7)	56 (60.9)	28 (30.4)	92

Table 3.11. Table showing the major causes of skin disease.

	Causes of skin infection	Very rarely (%)	Rarely (%)	Not Sure (%)	Often (%)	Very often (%)
1.	**Bacterial**	0 (0.0)	4 (4.0)	0 (0.0)	67 (67.0)	29 (29.0)
2.	**Fungal**	0 (0.0)	2 (2.0)	1 (1.0)	62 (62.0)	35 (35.0)
3.	**Viral**	0 (0.0)	56 (56.0)	19 (19.0)	20 (20.0)	5 (5.0)
4.	**Plasmodic**	4 (4.0)	35 (35.0)	27 (27.0)	25 (25.0)	9 (9.0)

Table 3.12. Table showing the various risk factors of skin diseases

Risk factor items	Strongly Disagree (%)	Disagree (%)	Not Sure (%)	Agree (%)	Strongly Agree (%)	TOTAL (%)
Are some of this skin diseases genetic?	4 (4.5)	25 (25.0)	55 (55.0)	12 (12.0)	4 (4.0)	100 (100.0)
Are they caused by environmental factors?	0 (0.0)	0 (0.0)	16 (16.2)	71 (71.7)	12 (12.1)	99 (100.0)
Is stress a risk factor?	10 (10.3)	21 (21.6)	33 (34.0)	33 (34.0)	0 (0.0)	97 (100.0)
Are some of them caused by food or water?	0 (0.0)	12 (12.0)	4 (4.0)	48 (48.0)	36 (36.0)	100 (100.0)
Do climatic factors affect the skin?	0	4	6	62	28	100

	(0.0)	(4.0)	(6.0)	(62.0)	(28.0)	(100.0)
Should alcohol, strong tea, and coffee be avoided?	22	27	15	27	9	100
	(22.0)	(27.0)	(15.0)	(27.0)	(9.0)	(100.0)

Table 3.13a. Prevalence of skin diseases with respect to age group affected most.

	Age groups	Prevalence (%)
1.	**<= 1 year**	5 (5.2)
2.	**1-10 years**	17 (17.7)
3.	**11-20 years**	52 (54.2)
4.	**21-30 years**	43 (44.8)
5.	**41-50 years**	0 (0.0)
6.	**51-60 years**	2 (2.1)
7.	**61 years and above**	0 (0.0)

Table 3.13b. Prevalence of skin diseases with respect to gender affected most.

	Gender of those affected	Prevalence (%)
1.	**Male**	25 (26.6)
2.	**Female**	69 (73.4)
	Total	94 (100)

Table 3.13c. Prevalence of skin diseases with respect to educational qualifications of those affected.

	Educational qualification of affected patients	Prevalence (%)
1.	**Primary level**	21(21.9)
2.	**Secondary level**	37 (38.5)
3.	**Tertiary level**	39 (40.6)
4.	**No level**	7 (7.3)

Table 3.13d. Prevalence of skin diseases with respect to age group affected most based on the qualification of community pharmacists.

		<= 1 year (%)	1-10 years (%)	11-20 years (%)	21-30 years (%)	41-50 years (%)	51-60 years (%)	>61 years (%)
1.	**B. Pharm**	5 (5.2)	11(11.5)	44(45.8)	35(36.5)	0(0.0)	0(0.0)	0(0.0)
2.	**FPC Pharm/M. Pharm**	0 (0.0)	6(6.3)	0(0.0)	7(7.3)	0(0.0)	2(2.1)	0(0.0)
3.	**PhD**	0 (0.0)	0(0.0)	4(4.2)	1(1.0)	0(0.0)	0(0.0)	0(0.0)

Table 3.13e. Prevalence of skin diseases with respect to gender affected most based on the qualification of community pharmacists.

		Male (%)	Female (%)	Total
1.	**B. Pharm**	17 (18.9)	51 (63.3)	74
2.	**FPC Pharm/M. Pharm**	8 (8.9)	3 (3.3)	11
3.	**PhD**	0 (0.0)	5 (5.6)	5
	Total			**90**

Table 3.13f. Prevalence of skin diseases with respect to educational qualifications of those affected based on qualification of community pharmacists.

		Primary level	Secondary level	Tertiary level	None
1.	**B. Pharm**	16	26	34	4
2.	**FPC Pharm/ M.Pharm**	5	3	5	2
3.	**PhD**	0	4	0	1
	Total	**21**	**33**	**39**	**7**

Table 3.13g. The most prevalent skin disease.

	Skin infections	Occurrence
3.	**Acne**	51
4.	**Eczema**	47
5.	**Dermatitis**	29
6.	**Psoriasis**	0
7.	**Wart**	9
8.	**Urticaria**	11
9.	**Vitiligo**	0
10.	**Others**	0

Table 3.14. Table showing relationship between skin conditions and health quality of life.

Highest Educational Qualification			Do you think that skin disease affects patient quality of life?				Total
			Disagree (%)	Not sure (%)	Agree (%)	Strongly agree (%)	
B. Pharm	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	4 (5.0)	18 (22.5)	2 (2.5)	24
		Strongly agree	4 (5.0)	0 (0.0)	20 (25.0)	32 (40.0)	56
	Total		4 (4.0)	4 (5.0)	38 (47.5)	34 (42.5)	80
FPC Pharm/M. Pharm	Have you ever seen any skin disease in your community practice?	Strongly agree	0 (0.0)	0 (0.0)	8 (72.7)	3 (27.3)	11
	Total		0 (0.0)	0 (0.0)	0 (0.0)	3 (27.3)	11
PhD	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	4 (80.0)	0 (0.0)	0 (0.0)	4
		Strongly agree	0 (0.0)	0 (0.0)	0 (0.0)	1 (20.0)	1
	Total		0 (0.0)	4 (80.0)	0 (0.0)	1 (20.0)	5
Total	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	8 (8.3)	18 (18.8)	2 (2.1)	28
		Strongly agree	4 (4.2)	0 (0.0)	28 (29.2)	36 (37.5)	68
	Total		4 (4.2)	8 (8.3)	46 (47.9)	38 (39.6)	96

Table 3.14b. Table showing the relationship between skin diseases and loss of healthy lifestyle in patients from the community pharmacists' experience/encounter.

Highest Educational Qualification			DO you think skin diseases can cause loss of healthy life?				Total
			Disagree	Not sure	Agree	Strongly agree	
B. Pharm	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	0 (0.0)	24(30.0)	0 (0.0)	24
		Strongly agree	12 (15.0)	8 (10.0)	20 (25.0)	16 (20.0)	56
	Total		12 (15.0)	8 (10.0)	44 (55.0)	16 (20.0)	80
FPC Pharm/M. Pharm	Have you ever seen any skin disease in your community practice?	Strongly agree	0 (0.0)	0 (0.0)	3 (27.3)	8 (72.7)	11
	Total		0 (0.0)	0 (0.0)	3 (27.3)	8 (72.7)	11
PhD	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	0 (0.0)	4 (80.0)	0 (0.0)	4
		Strongly agree	0 (0.0)	0 (0.0)	1 (20.0)	0 (0.0)	1
	Total		0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)	5
Total	Have you ever seen any skin disease in your community practice?	Agree	0 (0.0)	0 (0.0)	28 (29.2)	0 (0.0)	28
		Strongly agree	12 (12.5)	8 (8.3)	24 (25.0)	24 (25.0)	68
	Total		12 (12.5)	8 (8.3)	52 (54.2)	24 (25.0)	96

Table 3.15a. Table showing the relationship between lifestyle/environmental causative factors.

Gender of Pharmacist			Years of experience			
			1-10 years	11-20years	31-40 years	Total
Male	Are they caused by environmental factors?	Not sure	12	0	0	12
		Agree	48	4	4	56
		Strongly agree	4	0	0	4
	Total		64	4	4	72
Female	Are they caused by environmental factors?	Not sure	4	0	0	4
		Agree	11	0	0	11
		Strongly agree	4	0	0	4
	Total		19	0	0	0
Total	Are they caused by environmental factors?	Not sure	16	0	0	16
		Agree	59	4	4	67
		Strongly agree	8	0	0	8
	Total		83	4	4	91

Table 3.15b. Table showing the relationship between lifestyle/environmental causative factors.

Gender of Pharmacist			Years of experience			
			1-10 years	11-20years	31-40 years	Total
Male	Are some of them caused by food or water reaction?	Disagree	8	0	0	8
		Agree	33	0	4	37
		Strongly agree	24	4	0	28
	Total		65	4	4	73
Female	Are some of them caused by food or water reaction?	Not sure	4	0	0	4
		Agree	11	0	0	11
		Strongly agree	4	0	0	4
	Total		19	0	0	0
Total		Disagree	8	0	0	8

Are some of them caused by food or water reaction?	**Not sure**	4	0	0	4
	Agree	44	0	4	48
	Strongly agree	28	4	0	32
Total		84	4	4	92

Table 3.15c. Application of pharmaceutical care and possible drug therapy problems associated with skin disease.

			Was the pharmaceutical care process effective?					Total
Were there possible drug therapy problems?			Very rare	Rarely	Not sure	Often	Very often	
Very rare	**Do you apply pharmaceutical care in the management of ski diseases?**	**Very rare**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)	1
		Often	1 (2.0)	3 (5.9)	3 (5.9)	5 (9.8)	23 (45.1)	35
		Very often	2 (3.9)	0 (0.0)	2 (3.9)	3 (5.9)	8 (15.7)	15
	Total		3 (5.9)	3 (5.9)	5 (9.8)	8 (15.7)	32 (62.7)	51
Rarely	**Do you apply pharmaceutical care in the management of ski diseases?**	**Often**	1 (5.6)	0 (0.0)	1 (5.6)	1 (5.6)	11 (61.1)	14
		Very often	0 (0.0)	0 (0.0)	1 (5.6)	0 (0.0)	3 (16.7)	4
	Total		1 (5.6)	0 (0.0)	0 (0.0)	1 (5.6)	14 (77.8)	18
Not sure	**Do you apply pharmaceutical care in the management of ski diseases?**	**Often**	0 (0.0)	0 (0.0)	2 (11.8)	0 (0.0)	13 (76.5)	15
		Very often	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (11.8)	2
	Total		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	15 (88.2)	17
Often	**Do you apply pharmaceutical care in the management of ski diseases?**	**Often**	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.3)	4 (57.1)	5
		Very often	1 (14.3)	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.3)	2
	Total		1 (14.3)	0 (0.0)	0 (0.0)	0 (0.0)	5 (71.4)	7
Very often	**Do you apply pharmaceutical care in the management of ski diseases?**	**Often**	0 (0.0)	1 (14.3)	0 (0.0)	1 (14.3)	2 (28.6)	4
		Very often	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.3)	2 (28.6)	3
	Total		0 (0.0)	1 (14.3)	0 (0.0)	2 (28.6)	4 (57.1)	7
Total	**Do you apply pharmaceutical care in the management of ski diseases?**	**Very rare**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1(1.0)	1
		Often	2 (2.0)	4 (4.0)	6 (6.0)	8 (8.0)	53 (53.0)	73
		Very often	3 (3.0)	0 (0.0)	3 (3.0)	4 (4.0)	16 (16.0)	26
	Total		5 (5.0)	4 (4.0)	9 (9.0)	12 (12.0)	70 (70.0)	100

4. DISCUSSIONS

From the survey, there are more male community pharmacist than their female counterparts in Owerri. Majority of them are holders of the B Pharm, with 1-10 years' experience, and mostly single. However, those who are married are only 23.47%.

This can be explained by the fact that most of the pharmacist from 1-10 years of experience are young pharmacist who are ready to work as superintendent pharmacist even for non-pharmacists.

Skin diseases are very common type of human illness that affects majority of the human population and is a causative factor for other health related diseases. In this study, it was discovered that skin disease is a disease that affects people of all age groups, although it affected mostly those within the ages of 11-20 years followed by those within 21-30 years. The least affected age group is the 41-50 years and 61 and above age groups, both had no case of skin diseases at all. These findings are in conformity with the research done by Ulrike et al., (2016) who attributed this statistics to the constant non-inclusion of the aged in most medical researches even though they always want to be included. This might be because the aged might neglect most skin conditions and tag them as aging process or see them as not to be a benign or health issue, in contrast to the young who are always conscious of the look and skin conditions and thus seek medical solutions when this look is threathened.

Acne vulgaris (aka pimples on the face, blackheads, cysts, and nodules), caused by blockage of the hair follicles and sebaceous glands of the human skin, and is most time triggered by hormonal changes, according to the community pharmacist, is the most common occurring skin disease, with 51% of those they have encountered to have the illness complaining or been diagnosed of Acne vulgaris. Next is Eczema with 47% cases, dermatitis with 29% prevalence. This finding is in-line with a publication by Anderson (2018) in drugs.com. Contrary to these findings, Herman (1929), where Eczema happens to top the chart followed by Acne. In another study, by Schaefer (2008) eczema tops the chart of the major occuring skin disease. In another study done in Ibadan, Nigeria, shows that majority of the skin disease cases treated at the University Teaching Hospital, Ibadan were cases of Eczema, Adebola et. al (2004). Additionally, majority of the risk factors for these skin conditions in this work was linked to environmental factors and stress, this is in-line with the study by Shmunes (1988) and Aktas et. al (2016). Added to this, the type of food and water taken plus the climatic conditions, are also found to be predisposing factors too. Majority of them reported that the major causes of skin diseases they have experienced during this practice time are fungal related followed by bacterial infections, and then Plasmodic infections, with viral infections being the lowest. This is attributed to the increased heat and humidity levels brought about by climatic factors, thus, a significant rise in fungal and bacteria explosion (Hays, et al., 2013). Due to this, most of the community pharmacist usually advice patients on the need to take seriously their personal hygiene's specially to help limit the impact of bacterial infections that predisposes them to skin diseases.

All the community pharmacists are conversant with skin disease and have had an experience with it during their practice, this shows that they are well knowledgeable about skin diseases. Most of them also believes that skin diseases are not genetic in nature. There is a clash if stress is a risk factor for skin disease or not, this is so because 32% disagree with this statement while 33% agreed with the statement. Stress is the consequences of an organism's catastrophe to respond satisfactorily to the demands of the mental, emotional, physical, imagined or actual functioning of the body system (Selye, 1956). In some studies, it was demonstrated that keen "stress levels" are usually very much associated with some skin infections "(pruritus, alopecia, oily/waxy/flaky patches on the scalp, hyperhidrosis, scaly skin, onychophagia, trichotillomania, and itchy rash on hands)" Ghada et al. (2018); Schut et al. (2016); Raap, Werful et al. (2003); Chiu, Chon et al. (2003). In another study by Dixon, Witcraft, & McCowan (2018), it was found that "Stress was linked to skin disease-related emotional and functional impairment associated with skin".

Additionally, most of the community pharmacist agreed with the fact that skin diseases are one of the largest burdens of disease and affects a large number of patients especially those who neglect it at first, this is supported by a study finding by Henry, et al. (2017).

In this survey, skin diseases were found to be a common type of disease affecting mostly females, the reason being that in Owerri, there are a lot of tertiary institution which has more female population as students, and most of them happens to fall under the 21-30 years age range being the second most prevalent age group affected. Most of the respondents use topical creams, tablets, and counselling as a dosage form/management for skin disease. Majority of the pharmacist who are B. Pharm holders agreed that the management method being used had good outcomes. However, those with PhD levels had difficulty accepting the management method used, only few of them encompassed the total number that gave a positive verdict about the outcome of the management method used.

5. CONCLUSIONS

From this study, we can conclude that there is a high prevalence of skin diseases in Owerri. Community pharmacists in Owerri are knowledgeable in the management of skin diseases. The most prevalent skin condition in this study is Acne, followed by Eczema. A lot of community pharmacist in Owerri agreed that they applied pharmaceutical care in the management of the various skin conditions. Topical creams, lotions, and ointments are the most frequently used dosage forms, followed by tablets. Most respondents reported to be satisfied by the management outcomes, and they agreed that infection, food and water intake with climatic factors are the major risk factors of skin diseases.

It is very important that good management methods are incorporated to effectively handle the menace of the disease arising most times from the delay by patients to take it up or ignorance and lack of proper awareness. Community Pharmacists in Owerri should engage in more research to find out more about skin diseases, how to effectively manage and treat them. More enlightenment and sensitization should be organized to expose patients to more factors both lifestyle, environmental, clinical, and otherwise, that predisposes them to skin disease, likewise encourage them to always seek early diagnosis since most of them find it difficult to do. For the ladies, they should be educated on the wrong use of chemicals to beautify their skins by exposing them to its side-effects.

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