

# Assessment of Level of Knowledge of Management of Acne vulgaris among Community Pharmacists and Prescribers in Lusaka Urban

Lavina Prashar<sup>1,\*</sup>, Fredrick Kachipond<sup>2</sup>, Owen Nagalamika<sup>3</sup>

<sup>1</sup>Doctor/Lecturer Pharmacology,  
Department of Physiological Sciences,  
School of Medicine  
University of Zambia

<sup>2</sup>Pharmacist  
Nkhoma Hospital  
Lilongwe, Malawi,

<sup>3</sup>Dermatologist  
University Teaching Hospital  
Lusaka, Zambia.

\*Corresponding author's email: prasharlavina [AT] gmail.com

---

**ABSTRACT---** *Acne is a common skin condition affecting almost 85% of the population. Everyone has the risk of developing acne at certain stages of life. The management of acne in early stages is important for disease prognosis. Patients with acne usually present at community pharmacies and clinics during the early stages of their disease. Assessment of knowledge and practice of community pharmacists and prescribers in treating these patients is required. The aim of this study was to assess the levels of knowledge in acne management among community pharmacists and prescribers in Lusaka urban. The study was designed as a cross-sectional survey and was conducted on 89 community pharmacists and prescribers working in Lusaka, Zambia. Participants were asked to answer a self administered questionnaire on the management of acne vulgaris that comprised questions evaluating the knowledge on disease causes, aggravating or relieving factors, treatment practices and use of reference materials.*

*The study revealed that Pharmacists and prescribers had inadequate levels of knowledge on disease management; 21% had low levels of knowledge where as only 6% had high levels of knowledge. By category, 36% of the prescribers had low levels and 10% had high levels of knowledge. 8% of the pharmacists had low levels of knowledge and only 2% had high levels. Lack of knowledge was reflected in their treatment practices, 62.9% never classified acne when initiating treatment and less than a quarter managed acne cases independently. This study showed no association of levels of knowledge to referral of patients with severe acne ( $p>0.05$ ).*

*It was concluded from the study that pharmacists and prescribers have inadequate knowledge and practice for management of acne. Steps should be taken to update and improve their dermatological knowledge.*

**Keywords----** Acne, Knowledge, Prescribers, Pharmacist, Management

---

## 1. INTRODUCTION

Acne is a common skin condition affecting the face, chest, neck and the back. The WHO defines acne as an inflammatory condition of the pilosebaceous unit of the skin of the neck, face, and back. It is characterized by seborrhea (red scaly skin), comedons (black white heads) papules, nodules and pustules which sometimes heal with scarring [1].

This skin condition has a multifactorial pathology arising from interplay of both genetic and environmental factors. Implicated risk factors include some foods rich in carbohydrates, chocolate and some drugs like steroids which may predispose to acne of varying severity [2]. It is amongst the common dermatological condition affecting up to 85% of teenagers. It may also be present in the first few weeks of life when a new born is still under the influence of maternal hormones and when the androgen producing portion of the adrenal gland is disproportionately large. Adults are also not

spared, globally it is estimated that 12% of women and 5% of men are affected after the age of 25. The number of adults with acne appears to be on the increase although reasons for the increase are uncertain [3].

Acne is not associated with severe morbidity and mortality; it can nevertheless have considerable psychosocial consequences which are comparable to the effects of epilepsy, asthma and Diabetes. In a community based study, *Smith et al 2001* found a considerable impact of acne on emotional health and behavioral difficulties in adolescents. Similar findings have been observed in several studies which concluded that acne is associated with psychological disturbances and depression [4]. In the UK, 24% of the population consults a General practitioner (GP) each year because of skin problems. The GP refers approximately 6.1% of these cases to secondary care. In 2010/11, 873,000 cases were referred in England by GP with 2.9million total patients appointments on dermatological condition. However there is no published data on the number of patients with skin problems and acne who frequent community pharmacies. The role of community pharmacists and their staff is largely unknown but potentially huge, given that retail sales data suggests that as much as 18% of all OTC sales are for skin care products [5].

Acne has been associated with high costs of treatment. In United Kingdom alone, it is estimated that £100 million is spent on over the counter acne products yearly. Furthermore, patients who experience side effects from drugs are treated longer, hence incur more costs [6]. At present there are many topical and systemic therapeutic options available for treatment of acne. Systemic antibiotics have been the mainstay of treatment for many years, however the main cause of concern over their use, has been emergence of antibiotic resistant strains of *Propionibacterium .acnes*. Concomitant use of non-antibiotic therapies such as benzoyl peroxide helps to minimize the occurrence of resistance [7]. Resistant strains are associated with poor clinical response to therapy; hence prescribing strategies are required to minimize the occurrence of resistant strains of *P.acnes*.

## 2. METHODS

### 2.1 Design

The study was a cross-sectional survey which adopted both a quantitative and qualitative approaches. It involved the use of self administered questionnaire in seeking to assess and have an in-depth understanding of the level of knowledge of prescribers and community pharmacist in the treatment of acne Vulgaris.

### 2.2 Study Area And Study Period

This study was carried out in Lusaka, Zambia, in the selected Community Pharmacies and Government Clinics. The study was conducted from March 2015 to April 2015.

### 2.3 Ethical Considerations

Application for ethical approval to conduct the research was obtained from the University of Zambia Biomedical Research Ethics Committee. Written permission to conduct study in the health centers was obtained from the Ministry of Health, through the District Health Office. Health centre In-charges were given an introductory letter before meeting the prescribers. The purpose of the study was explained to the study participants. Participation was voluntary and information provided was treated as confidential and anonymous.

### 2.4 Sampling

Pharmacies were selected based on their region of location. Lusaka was divided into 5 divisions, namely central, north, south, east and west. Every 2<sup>nd</sup> of the community pharmacy was selected from the sampling unit within each location. A total of 50 community pharmacies were targeted. Convenient sampling was used for health centers considering the fact that they are few. In this case all the 25 Government health centers actively operating in Lusaka Urban were included in the study.

The sample population included prescribers (Medical Officers and Clinical Officers) and Pharmacists (Pharmacy technologists and registered Pharmacists). Private health centers/clinics, pharmacy dispensers and nurses were excluded from the study.

### 2.5 Data Collection Tool

Self administered semi-structured questionnaires with closed ended questions were given to study participants. The questionnaires comprised four sections [A] Demographic data, [B] Assessment of knowledge of causes and aggravating factors of acne. [C] and [D] looked at prescribers knowledge on treatment options, drugs available and practice in management of acne. It also included the management aspect of acne, referral and patient counseling and participant's attitude towards the condition.

To assess knowledge levels, responses to section B which comprised questions on causes, aggravating factors, relieving factors and complications were scored on a scale of 1 to 12. Each correct answer carried 1 mark and zero for a wrong answer. Levels were determined on a range of 0 to 6 as low level, 7 to 9 as moderate and 10 to 12 as high level. (Adapted from Al Shobaili, Journal of Egyptian Public Health 2013) [8].

The questionnaire was subjected to pilot testing, involving survey of 5 prescribers randomly selected from 5, private clinics, it was further validated by an academican (Lecturer in Pharmacology) and a Dermatologist working at the busiest teaching hospital in Lusaka, Zambia.

## 2.6 Data Analysis

Following data collection the self-administered questionnaires were sorted out and checked for internal consistency, completeness, legibility and accuracy.

Frequencies of various responses were estimated and data was cross tabulated. Referrals of cases in relation to the participating prescribers' knowledge level and their background were examined using the  $\chi^2$ - and Fishers test at 5% significance and 95% confidence interval.

## 3. RESULTS

### 3.1 Demographics

A total number of 89 questionnaires were analyzed. Participants of the research included 50 Males (56.2%) and 39 Females (43.8%) with a mean work experience of 3 years.

More than half (51.6%) of the participants had less than 6 years of experience and 48.4% had more than 5 years of work experience. About one third (34.8%) of the participants had completed undergraduate studies and 5.6% were masters degree holders in the field of medicine while 59.6% were diploma holders in Clinical medicine and Pharmacy. Medical officers had a minority presentation of 11.2% followed by Pharmacists 23.6% while clinical officers and Pharmacy technologists represented 34.8% and 30.3% respectively.

### 3.2 Knowledge of Diagnosis and Management of Acne.

Response of participants to questions on the causes and pathophysiology of acne is summarized in fig.1. The majority of participants reported that acne is caused by bacteria 92.1%, hormones 87.6% and cosmetics 84.1%. However majority 66.3% did not know that some drugs can cause acne.

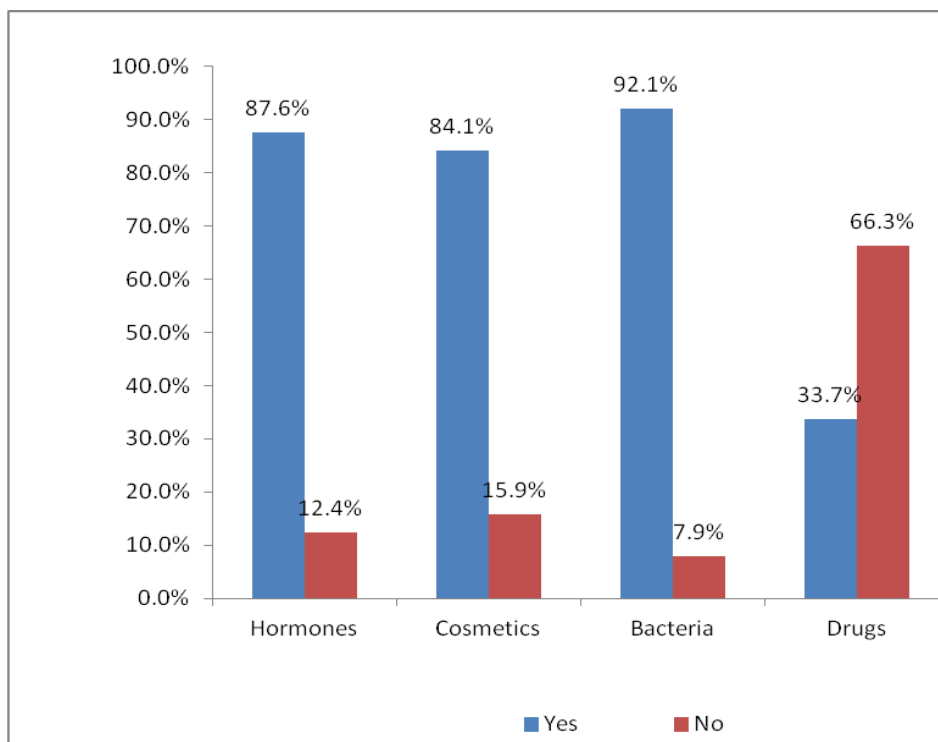
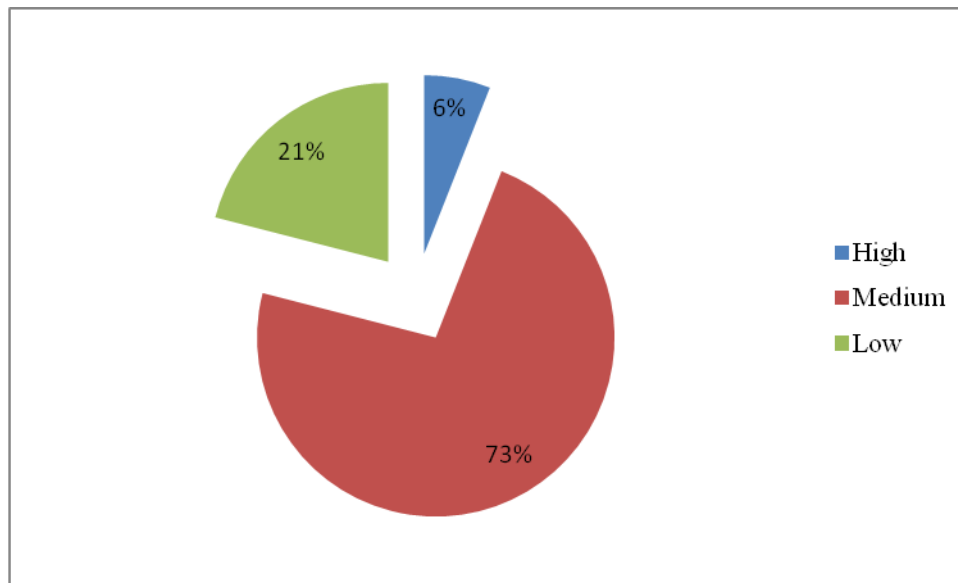


Figure 1: Knowledge on Causes of Acne Vulgaris

The overall levels of participants' knowledge on acne management are illustrated by fig. 2 which shows that the majority had low to moderate levels of knowledge (21% and 73%) and only 6% had high levels of knowledge.



**Figure 2:** Levels of knowledge in the management of acne vulgaris.

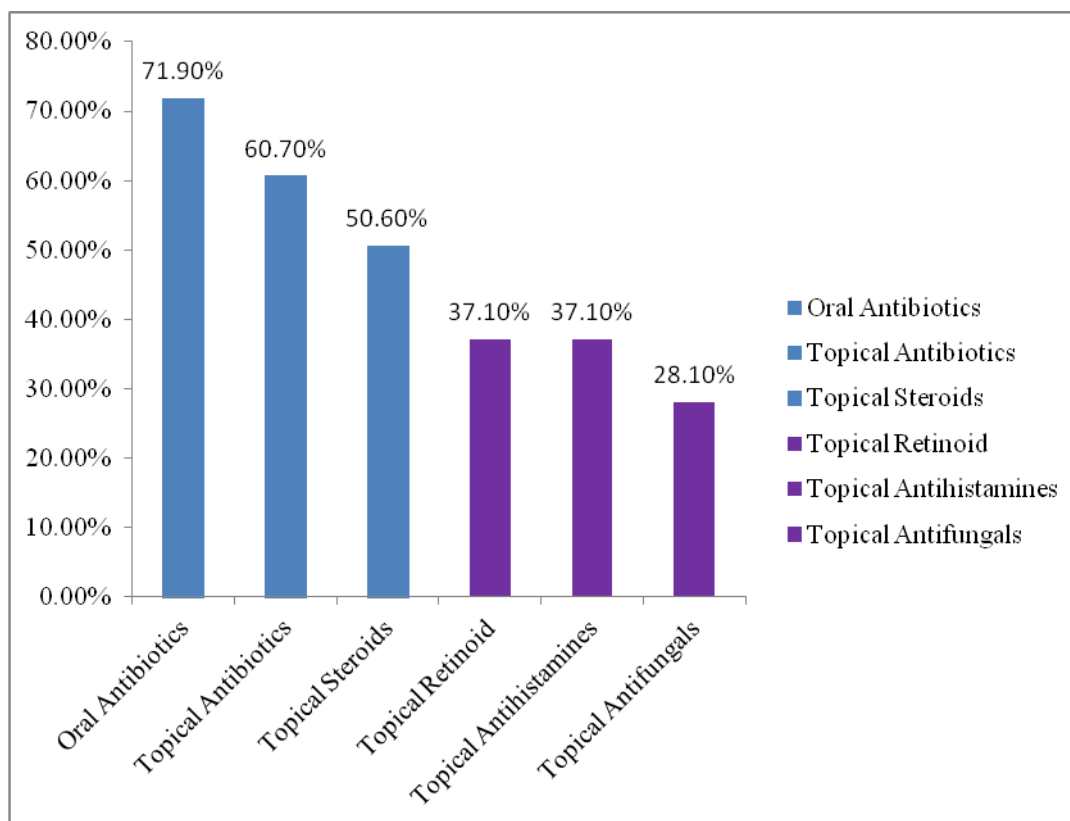
To establish the association between professional category and levels of knowledge a Fishers Exact test was carried out at a significant level of 0.05. The results were significant ( $\chi^2=14.338$ ;  $df=2$ ;  $p=.001$ ) showing that Pharmacists were more knowledgeable than prescribers regarding management of acne.

**Table 1:** Fishers' Exact test results: Professional category versus knowledge levels

Professional category		Knowledge levels			Total
		Low	Medium	High	
Prescribers	Count	15	22	4	41
	Expected Count	8.8	29.9	2.3	41.0
Pharmacists	Count	4	43	1	48
	Expected Count	10.2	35.1	2.7	48.0
Total	Count	19	65	5	89
	Expected Count	19.0	65.0	5.0	89.0
$\chi^2=14.338$ ; $df=2$ ; $p=.001$					

### 3.3 Treatment Options and Drugs Available.

Pharmacists and Prescribers interviewed demonstrated that in general for management of acne, oral antibiotics of tetracycline group (71.9%) were most used followed by topical antibiotics of macrolide group (60.7%) , the least chosen were topical antihistamines and antifungal which represented (37.1%) and (28.1%) respectively.



**Figure 3:** Drugs commonly used in management of acne

For management of mild acne majority of the participants indicated the use of Benzoyl peroxide lotion (53.4%). 11.4% comprised use of other drugs which included nalidixic acid, clotrimazole cream, and ciprofloxacin

**Table 2:** Drugs commonly used for managing mild acne.

Drugs	Count	Table N %
Benzoyl peroxide lotion	47	53.4
Salicylic acid ointment	23	26.1
Topical retinoids	20	22.7
Sulphar based soap	13	14.8
Others	10	11.4

For the management of severe acne there was a general trend towards use of oral antibiotics (tetracycline group followed by macrolides) as shown in table 3 below. 7.9% of the participants indicated use of other antibiotics such as Cotrimoxazole, Amoxicillin, Ciprofloxacin, Azithromycin, and others drugs such as Spironolactone and Chlorpheniramine.

### 3.4 Practice of Acne Management

Fischers test showed a significant association between profession and the use of standard treatment guidelines. 61.8% of the participants, mostly pharmacists indicated that they used some form of standard treatment guidelines in the management of acne and only 34.8% made an effort to follow up their patients. It was good to note that majority of them (77.5%) referred patients with severe acne for further management. 22.7% of these referred the patient without any medication while 68.2% referred with partial treatment.

**Table 3:** Practices in Acne Management.

Practices	Values	Frequency	Percent
Following treatment Guidelines	Yes	55	61.8 %
	No	34	38.2 %
What is the average treatment duration	One week	11	12.4 %
	2 to 4 weeks	47	52.8 %
	More than one a month	31	34.8 %
Make follow-up on acne patients	Yes	31	34.8 %
	No	58	65.2 %
Refer patients with severe acne for further management	Yes	69	77.5 %
	No	20	22.5 %
What other support do you provide to patient treated for acne?	Frequent washing of face	39	43.8 %
	Adhere to treatment regimen	66	74.2 %
	Avoid manipulating pimples	43	48.3 %
	Avoid stress	33	37.1 %
How do you refer patients with severe acne Vulgaris?	Refer without medications	20	22.7 %
	Provide partial treatment	60	68.2 %
	Manage independently without referral	9	10.2 %
What guidelines do you follow?	BNF	42	47.7 %
	WHO	14	15.9%
	None	33	37.1%

Participants practices towards patient support showed that, the majority 74.2% advised their patients to adhere to treatment while 48.3% stressed on avoidance of manipulating pimples followed by frequent washing of the face 43.8% and avoidance of stress 33.1%. Some participants indicated more than one advice. The least instructions provided by most prescribers and pharmacy personnel included informing patients that, the disease is self limiting 27% and adopting health life styles (exercise and sleep) 39.3% followed by assurance of an effective treatment and counseling on emotional support was the most preferred advice 69.4%.

A fishers test was carried out at a significance level of 0.05, to establish whether there was an association between the independent variables: profession capacity, knowledge levels work experience and level of education and ability to refer patients with severe acne for further management. In all cases the results were not significant ( $P>0.05$ ). This indicates that there was no association between the independent variables and referral of severe cases to dermatologist.

#### 4. DISSCUSSION

Prescribers managing acne require having adequate knowledge of management of Acne. It becomes even more important for prescribers in community as patients in early stages of the condition seek help mainly from pharmacies and local clinics. Our study found that majority of the participants had low to moderate levels of knowledge in management of acne. This is in consistence with the report by the British American Dermatologist Association of 2007, which

reported that most Physicians and Pharmacists lack adequate knowledge in managing dermatological conditions [9]. In this study majority of the pharmacists (90%) had moderate knowledge and only

Majority of the participants (87.6%) indicated hormones as the common cause of acne; this is in line with literature [10]. 92.1% of the respondents believed that acne can result from hypersensitivity to P. acne. A similar study done in Arabia found 80% of the prescribers were of the opinion that hormonal disturbances and bacteria play a role in causing acne. Positive family history was not thought to be an important cause of acne (42.7%), on the contrary familial link as an important determining factor of acne has been documented [12, 13].

Majority of the participants (84.1%) believed that, cosmetic preparations are associated with onset of acne. The reason behind this is that, cosmetics preparations contain oils or waxes that plug in the follicular opening closing the spaces. Therefore cosmetics constitute the aggravating factors for acne eruptions. Several studies have reported on the role of food and food products as aggravating factors of acne [14]. The role of drugs in causing acne was not known by the majority (66.3%) of the respondents. Androgens, bromides, non combined oral contraceptives, some antiepileptic drugs, lithium and iodides are known common causes of Acne vulgaris in candidates taking those [9]. Inadequate knowledge of factors contributing to acne, leads to inefficient counseling of patients by prescribers.

Proper management of acne starts with coming up with a right diagnosis followed by classification on severity of acne. Acne Vulgaris is clinically diagnosed by the presence of papules, pustules, nodules and comedons which sometimes are non inflammatory or inflammatory. The presence of these eruptions will determine the diagnosis and severity of the disease [5, 9]. Our study revealed that, majority of respondents (88.8%), reported the ease in diagnosing Acne vulgaris in patients. On the contrary 62.9 % did not see the importance of classifying acne severity when initiating treatment. This explains the low levels of knowledge in acne management and is justified by the study done by *Manahan et al* [5], which revealed shortfalls in the diagnostic capacities of Pharmacist in dermatological conditions.

The higher response on non classification of severity among respondents could be attributed to lack of reference materials. Some common reference materials that are used in the clinics and Community Pharmacies include British National Formulary (BNF) and Zambian Standard Treatment Guidelines (ZSTG). Currently the BNF has an outline on how acne is managed and its classification [5]. However it was observed that only 47.7% referred to BNF when managing acne Vulgaris while 37.2% never consulted any reference materials. The common reference materials at national level in Zambia include the Zambian National Formulary and Zambian Standard Treatment Guidelines, unfortunately these materials do not provide the classification of Acne vulgaris but has a list of drugs that are used in treatment. This doesn't suffice the inadequacy in the knowledge of managing acne by prescribers and pharmacist. There is a need for national guidelines in managing acne which was supported by 88.8% of the participants.

The low report on classification of acne could also be attributed to poor perception by prescribers and Pharmacist on the condition. Several studies have reported poor attitude by patients and health care providers on acne and some skin conditions [5]. In this study 40.4% of the participants felt that acne is not a problem in Zambia which could lead to lack of seriousness in its management. There is a common belief that acne is a self limiting disease that can resolve on its own without medical therapy.

## 5. REFERENCES

1. "World Health Organization (WHO), model of prescribing information: drugs used in skin disease Geneva", 1997.
2. Arora MK, Yadav A, Saini V, "Role of hormones in Acne vulgaris. Clinical Biochemistry". Vol. 44, no. 13, 1035-40, 2011.
3. Kaiser R, Vaibhay T. Arvind S, & Om P, "An understanding of Acne vulgaris disease and its impact on life". International Journal on Dermatology, vol. 4, no. 2, pp. 14-20, 2012.
4. Smith FJ, Salkind MR., "Presentation of clinical symptoms to community pharmacists in London". Journal of Social and Administrative Pharmacy, vol. 7, no. 4, pp. 221-24, 1990.
5. Tucker R, Duffy J, "The Role of Community Pharmacists in the Management of Skin Problems". J Pharma Care Health Sys 1:105. doi: 10.4172/jpchs.1000105, 2014.
6. Rutter P. Symptoms, Diagnosis and Treatment of skin problems: A Guideline for Pharmacist and Nurses. Edinburgh: Elsevier Churchill Livingstone, 2005.
7. Kamal A, Mahmoud A, and Eman R, Hofny MD, "Prevalence of skin disease in rural areas of Assiut Governorate Upper Egypt. International Journal of Dermatology, 887-92, 2003.

8. Hani A, Al Shobaili , “Knowledge and practice of Primary Health Care physicians for management of acne in Saudi Arabia” *Journal of Egypt Public Health Association* 2013.88: 26-31.
9. Smithard A, Glazebrook C, Williams HC. Acne prevalence, knowledge about acne and psychological morbidity in mid-adolescence: a community-based study among Saudi acne patients. *Br J Dermatol* 2001; 145(2):274-9.
10. Thiboutot D, Gilliland K, Light J, Lookingbill D. “Androgen metabolism in sebaceous glands from subjects with and without acne.” *Archive of Dermatology* 1999; 135:1041–45.
11. Alhazmi A, Aljarallah JS. Knowledge, attitude and practice of physicians working in primary health care centers towards acne vulgaris. *Saudi Epidemiol Bull* 2006; 13:19–20.
12. Xu SX, Wang HL, Fan X, Sun LD, Yang S, Wang PG, et al. “The familial risk of acne vulgaris in Chinese Hans – a case–control study.” *J Eur Acad Dermatol Venereol*, vol. 21, no. 5, pp. 602–5, 2007.
13. Ghodsi SZ, Orawa H, Zouboulis CC. “Prevalence, severity, and severity risk factors of acne in high school pupils: a community-based study.” *Journal of Investigative Dermatology*, vol. 129, no. 9, pp. 2136–41.
14. Reynolds RC, Lee S, Choi JYJ, Atkinson FS, Stockman KS, Petocz P, Brand-Miller JC. “Effect of the glycemic index of carbohydrates on Acne vulgaris.” *Nutrients*; 2, no. 10, :1060–72, 2010.
15. .Manahan MN, Soyer HP, Nissen LM,” *Teledermatology in Pharmacies: a pilot study*”. *J Telemed Telecare* vol. 17: pp. 392-96, 2011.
16. *The British National Formulary* 65, March –September 2013, pp 764