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Assessment of knowledge and perception of acne vulgaris among undergraduate students at Al-Hikmah university Ilorin, Nigeria

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Abstract

Background: Acne is a common chronic inflammation of the skin sebaceous glands, with a prevalence of about 85% in adolescents and adult. It is a common skin condition that occurs when hair follicles become clogged with oil, dead skin cells, and bacteria. It often appears as pimples, blackheads, whiteheads, or cysts, primarily common during puberty due to hormonal changes but can affect people of all ages. **Aim:** This study was designed to assess the level of knowledge and perception of acne vulgaris among undergraduate students at Al-Hikmah University, Ilorin, Kwara State. **Methodology:** Descriptive design was adopted for this study, 243 subjects respond to questionnaires (online goggle form). Data collected were analyzed using descriptive statistics and inferential statistics with Statistical Package for Social Science (SPSS). **Results:** Majority of the respondents 140(57.8%) were in the age group 21-25years. 169(69.7%) had knowledge that acne is a chronic inflammatory condition while 139(57%) perceived that acne is a serious health problem. There was a statistically significant relationship between gender and knowledge (p<0.05) with females 167(68.9%), displaying higher levels of knowledge about acne compared to males 76(31.1%). **Conclusion:** It is recommended to health educate the students about acne vulgaris to further enlighten them on the condition. The study revealed high levels of knowledge gap and varied perceptions of acne vulgaris among the respondents. While many respondents are well-informed, misconceptions and reliance on non-medical treatments remain prevalent.

Keywords: Acne vulgaris, Saturated, Knowledge, Perception, Questionnaire

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1. Introduction

1.1. Background to the study

Acne vulgaris is a disease of the skin where hair follicles and sebaceous (oil) glands are found such as the face, neck, chest, shoulders, and back. The condition typically starts at puberty and is induced by abnormal follicular keratinization, excessive sebum production, propionibacterium acnes colonization, and localized inflammation. In addition to the typical lesions of comedones, papules, pustules, nodules, and cysts, there may be scarring and post inflammatory hyper pigmentation (Heng and Chew, 2020).

Acne ranks eighth among skin illnesses, affecting 9.4% of the world's population. Over 85% of teenagers suffer from acne, and the condition can last into adulthood. It typically affects women and is the reason for two-thirds of dermatologist appointments (Tan *et al.,* 2019). The distinct lesions can be classified as either inflammatory (papules, pustules, nodules, and cysts) or non-inflammatory (open/black and closed/white comedones), which results in skin pigmentation and scarring and calls for ongoing, consistent treatment. (Conforti *et al.,* 2021).

Acne develops as a result of hypersensitivity of the sebaceous glands to normal levels of circulating androgens. This process is further exacerbated by the presence of *Cutibacterium acnes (C acnes),* a bacterial species, and subsequent inflammation (Motosko *et al.,* 2019). The five most common factors thought to cause acne are stress, poor hygiene, hormones, menstruation, and genes (Leung *et al.,* 2021). However, the association between body mass index and acne vulgaris is poorly understood, with contradictory results reported in various studies (Snast *et al.,* 2019).

The first global study on the epidemiology of acne carried out at Pierre Fabre Laboratory revealed a world-wide prevalence of 20.5% to 28.5%. This is the highest in the group of adolescents/young adults between 16 and 24 years of age and also remains quite high in the group of adults aged 25 to 39 years old, at 19.3% (Castres and France, 2024). Generally speaking, women (23.6%) are more affected by acne than men (17.5%). Significant disparities were observed between geographic areas. The highest prevalence of acne was observed in Latin America (23.9%), East Asia (20.2%), Africa (18.5%) and the Middle East (16.1%), while the lowest prevalence was observed in Europe (9.7%) and Australia (10.8%) (Castres and France, 2024).

Complication of Acne can be by scarring (Tameez-Ud-Din *et al.,* 2019). Other complications and impact of acne vulgaris are not only limited to physical appearance but have been linked with psychological effects such as low self-esteem, loss of confidence, fuelling anxiety, depression, and other emotional trauma that threaten the quality of life (Machiwala *et al.,* 2019).

There are many myths and misconceptions among students, patients as well as health physicians regarding the causes and treatment of acne. Across studies, there is misinformation about predisposing factors of acne implicating diet, poor skin hygiene, stress, and using varying brands of cosmetics as important predisposing factors (Gupta and Dhande, 2019).

A study done to determine the perception of acne among adolescents in Jos, Nigeria showed distinct perception and attitude pattern surrounding acne was observed, as a significant proportion (64.1%) of those who related acne to a biological phenomenon had acne themselves; however, the belief that acne is caused by skin lightening practices was significantly more common in those without acne (67.9%) than in those with acne (32.1%) (Adah *et al.,* 2023).

This study therefore aim at assessment of knowledge and perception of acne vulgaris among female undergraduate students at Al-Hikmah University, Ilorin, Kwara State, Nigeria.

2. Research Methodology

2.1. Ethical consideration

Ethical approval letter to conduct research was collected from Al-Hikmah University Ethical Review Committee and a letter of introduction will be signed by the Head of Nursing Science department, before administration of questionnaire. In addition, an informed consent was seek from respondents and information confidentiality was assured on the top of each questionnaire seeking for their cooperation and permission to conduct the

research. Respondents were not forced nor coerced to answer the interview questions and are free to withdraw at any time.

The research was conducted in accordance to ethical principles:

Autonomy: Inform consent will be obtained from the respondents.

Beneficence: The study will not do harm to the respondents but will advance understanding of acne knowledge and perception among undergraduate students of Al-Hikmah university.

Non-maleficence: The questionnaire will not pose risk to the respondents as no identifiable information will be collected.

Confidentiality: Data collected from the study will be kept confidential by using anonymous questionnaire.

Justice: Respondents will be treated with equity as much as possible.

Veracity: The data collected from the questionnaire will be of honest representation as obtained from the respondents to accurately reflect the knowledge and perception of acne vulgaris among undergraduate students of Al-Hikmah University.

2.2. Research design

A research design is a strategy for answering research questions using empirical data (McCombes, 2024). The research design adopted in this study was a cross-sectional descriptive research design because this will helps to explain the current knowledge and perception of acne vulgaris among undergraduate students of Al-Hikmah University, Ilorin, Kwara State.

2.3. Research approach

Research approach is the procedure selected by the researcher to collect, analyze and interpret data, it is categorized into three: Qualitative approach, Quantitative approach and mixed method. Qualitative research use empirical data like case studies, life experiences, and stories to understand individuals' struggles and motivations, which cannot be quantified. Quantitative research uses numerical values from observations to explain and characterize the phenomena they reflect. Mixed-method methods simply use a combination of both qualitative and quantitative approaches dependent on the purpose of the study and the nature of the research question in order to create a deeper understanding of the subject (Aspers and Corte, 2019). The research approach used in this study was quantitative Approach.

2.4. Quantitative approach

This involves collecting numerical data through scaled responses with the use of questionnaire to gather descriptive information about respondents' knowledge and perception of acne. The advantages relating to this research topic are that it will measure the knowledge of Acne, reveal trends in perceptions among different student groups. However, the disadvantage is that it might not capture students' personal experiences or emotional responses to acne.

2.5. Setting of the study

Al-Hikmah University, Ilorin is an Islamic private university located in Ilorin, Kwara state, Nigeria. It was founded in 2005 by the Islamic Education Trust, a Non-profit organization known as Abdul Raheem Oladimeji Islamic Foundation (AROIF) based in Nigeria. The goal of the University is to be a center of Intellectual and moral excellence. The University have seven faculties (Faculty of Agriculture, Faculty of Health Sciences, Faculty of Law, Faculty of Natural and applied sciences, Faculty of Humanities and Social sciences. Faculty of Management sciences and Faculty of Education) and fifty departments presently as at 2023-2024 academic sessions.

Al-Hikmah University is situated at Ilorin west local government area of Kwara State, Nigeria (latitude N 8 degree 29, longitude E 4 degree 30', and Altitude 307 m above sea level). It has three campuses but the main University's campus is located at Adewole Housing Estate along Adeta Road in Ilorin, Kwara State, Nigeria.

The University collaborate with research Institute and centers such as Centre for Research and International Cooperation (CRIIC), established in August 2013.

2.6. Target population

The target population are the students of Faculty of Agriculture, Al-Hikmah University, Ilorin, Kwara state, Nigeria. This study involves both males and females students in order to assess the knowledge and perception of acne vulgaris.

2.7. Sampling technique

A sample is a subset of individuals from a larger population. Sampling is selection of a subset from a population (Bhandari, 2023). Sampling technique is a process of selecting a sample that will represent the group as a whole. There are two primary types of sampling techniques, namely probability and Non-probability sampling. Probability sampling involves random selection, allow making strong statistical inferences about the whole group while Non-probability sampling involves non-random selection based on convenience or other criteria, allow easily data collection (McCombes, 2023). Stratified Sampling as a type of probability sampling was used in the selection of sample size in this study due to the population size of faculty of Agricultural Science. This technique ensures a fair non-subjective selection of sample from population, it also guarantee the inclusion of each element or target respondents (both female and male in the faculty) in the selection procedure.

2.8. Sample size determination

The sample size for the study was determine using Taro Yamane formula, a simplified formula for calculating sample size, which is: $n = N/(1+N \times e^2)$ where:

n is sample size

N is the population size

E is the margin of error (0.05)

The number of students from 100-500 level in faculty of Agriculture is 618 as obtained from the university undergraduates students record, Hence the total population size. The sample size determination:

$n = 367/(1+ 618 \times (0.05)^2)$

$n = 618/(1+618 \times (0.0025))$

$n = 618/(1+1.545)$

$n = 618/2.545$

$n = 242.5$ approximately 243 students.

Table 1: Sampling of students in faculty of agriculture			
Level	**Number of students**	**Percentage (%)**	**Sample**
100	42	42/618*100 = 6.8~ 7%	7/100*243 = 17
200	95	95/618*100 = 15.4~15%	15/100*243 = 36
300	129	129/618*100 = 20.9~21%	21/100*243 = 51
400	140	140/618*100 = 22.7~23%	23/100*243 = 56
500	212	140/618*100 = 34.3~34%	34/100*243 = 83
Total	618	100%	243

2.9. Research instrument

The research data collection tool/ Instrument that will be used for this study will be Questionnaire.

2.9.1. Questionnaire

A well-structured questionnaire was developed to effectively assess students' knowledge and perception of acne through a combination use of close-ended questions, likert's scale and open- ended questions. It consist of Three (3) sections, namely: Section A, B, and C.

Section A: This section consists of five (5) questions about the social-demographic characteristics of the respondents. The age, gender, tribe, department and year of study.

Section B: This section consists of eleven (11) questions, close ended questions to assess the knowledge of Acne on the causes, symptoms and treatment options.

Section C: This Section consists of five (5) likert's scale questions to assess the perception of students on Acne.

2.10. Validity of the instrument

Validity refers to how accurately a method measures what it is intended to measure (Middleton, 2024). The questionnaire was validated by the supervisor to ensure that the research instrument will generate accurate and reliable data.

2.11. Reliability of the instrument

Reliability means dependability and trustworthiness. Reliability refers to how consistently a method measure something (Middleton, 2024). The instrument reliability was tested using a small scale pilot study for the questionnaire by sending virtually to five students in the faculty of Agriculture to ensure it is working as intended.

2.12. Method of data analysis

Data analysis is a process of making sense out of gathered data (Taherdoost, 2020). After Data collection, the analysis methods used for this study was descriptive and inferential statistics. Descriptive statistics is a type of data analysis method that summarize the characteristics of a data set while Inferential statistics is a type of data analysis method that make prediction and predictions based on the data (Bhandari, 2023).

3. Results

3.1. Data presentation

Findings from the demographic characteristics of the students as shown in Table 2 revealed that 67(27.5%) respondents were between 16 to 20 years, 140(57.8%) were between 21 to 25 years while 36(14.8%) were 26 years and above. Majority 167(68.9%) were female, while 76(31.1%) were male 198(81.6%) are Yoruba, 3(1.2%) are Igbo, 27(11.1%) are Hausa, 15(6.1) are Fulani. About 128(52.9%) are from agronomy department, 115(47.1%) are from Agricultural extension department. Furthermore, about 52(21.3%) were in 300 level, 73(30.3%) were in 400 level, 72(29.5%) were in 500 level while 28(11.5%) were in 200 level and 18(7.4%) were in 100 level (Table 2).

In addition, Findings from the questionnaire showed that, majority 215(88.1%) have heard about acne before, while 28(11.9%) have not heard about acne. However 91(42.3%) heard about acne from family and friends, 90(41.9%) heard about acne from the internet, 28(13.5%) heard about acne from school, 5(2.3%) heard about from health workers while 28(11.5%) didn't response to the question which equate to those who haven't heard about it.

Moreover 14(5.7%) believed that acne is a beautifying spot on the face,169(69.7%) believed that acne is a chronic inflammatory skin condition, 38(15.6%) believe that Acne is a skin disease involving the oil glands at the base of hair follicles, 22(9%) do not know the meaning of acne vulgaris.

Among the respondents, 190(78.3%) believe that acne worsens by picking/rubbing/squeezing, 33(13.5%) do not believe that acne worsens by picking/rubbing/squeezing, while 20(8.2%) do not know if it worsens by picking/rubbing/squeezing or not. More findings also indicate that 22(9%) believe that acne vulgaris is

Table 2: Socio-demographic characteristics of respondents (n = 243)			
Variables	**Response**	**Frequency**	**Percentage (%)**
Age (in years)	16-20	67	27.5
	21-25	140	57.8
	26-30	36	14.8
	Total	243	100
Level	100 level	18	7.4
	200 level	28	11.5
	300 level	52	21.3
	400 level	73	30.3
	500 level	72	29.5
	Total	243	100
Gender	Female	167	68.9
	Male	76	31.1
	Total	243	100
Tribe	Yoruba	198	81.6
	Igbo	3	1.2
	Hausa	27	11.1
	Fulani	15	6.1
	Total	243	100
Department	Agronomy	128	52.9
	Agric extension	115	47.1
	Total	243	100

untreatable, 203(83.6%) do not believe that it is untreatable, while 18(7.4%) do not know if it is treatable or untreatable.

The skin types of the respondents vary with 67(27.5%) having dry skin, 79(32.4%) oily skin, 64(26.2%) both dry and oily skin, 34(13.9%) do not know the type of skin that they have 147(60.2%) had acne in the past year, while 96(39.8%) had not. Out of those that had acne, 83(47.4%) were mild, 77(44.6%) were moderate, 13(8%) were severe while 68(28.4%) didn't response to the question which equate to those that didn't experience it in the previous one year.

In treatment for the acne, 30(16.9%) used treatments from health workers, 15(8.5%) used herbs as a treatment option for acne vulgaris, 11(6.2%) used over the counter drugs for treatment, 33(18.6%) took friends and family members advice in regards to treatment of acne, while 88(49.7%) used treatments from skin care vendors. 124(51.0%) noticed effective treatment while 51(21.0%) did not get effective treatment with the form of treatment they used for the acne.

According to the findings from the respondents identified to be consuming oil containing foods 142(58.2%), menstrual cycle 132(54.1%), poor skin hygiene 130(53.3%), genetics 126(51.6%), stress 100(41%), then bacteria 96(39.3%), then pregnancy at 87(35.7%), then consumption of sweets and alcohol at 47(19.3%), drugs at 34(13.9%) and 77(31.6%) as causes of acne vulgaris (Figure 1). Furthermore, in attempt to understand the perspective of the students on acne. Findings from the study showed that 31(12.7%) strongly agree that acne is a serious health issue, 108(44.3%) agree that acne is a serious health issue, 36(14.8%) strongly disagree that acne is a serious health issue, while 69(28.3%) disagree about acne being a serious health issue, 86(35.2%) of the respondents strongly agree that good hygiene prevents acne, 112(45.9%) agree that good hygiene prevents acne, 27(11.1%) strongly disagree that good hygiene prevents acne, while 19(7.8%) disagree that good hygiene prevents acne. Also 66(27%) strongly agreed that everyone is susceptible to acne, 100(41%) agree, 32(13%) strongly disagree and 24(18%) disagree that everyone is susceptible to acne 38(15.6%) believe that acne will resolve without medical intervention, 104(42.6%) agree that acne will resolve without medical intervention, 52(21.3%) strongly disagree that acne will resolve without medical intervention, 50(20.5%) disagree that acne
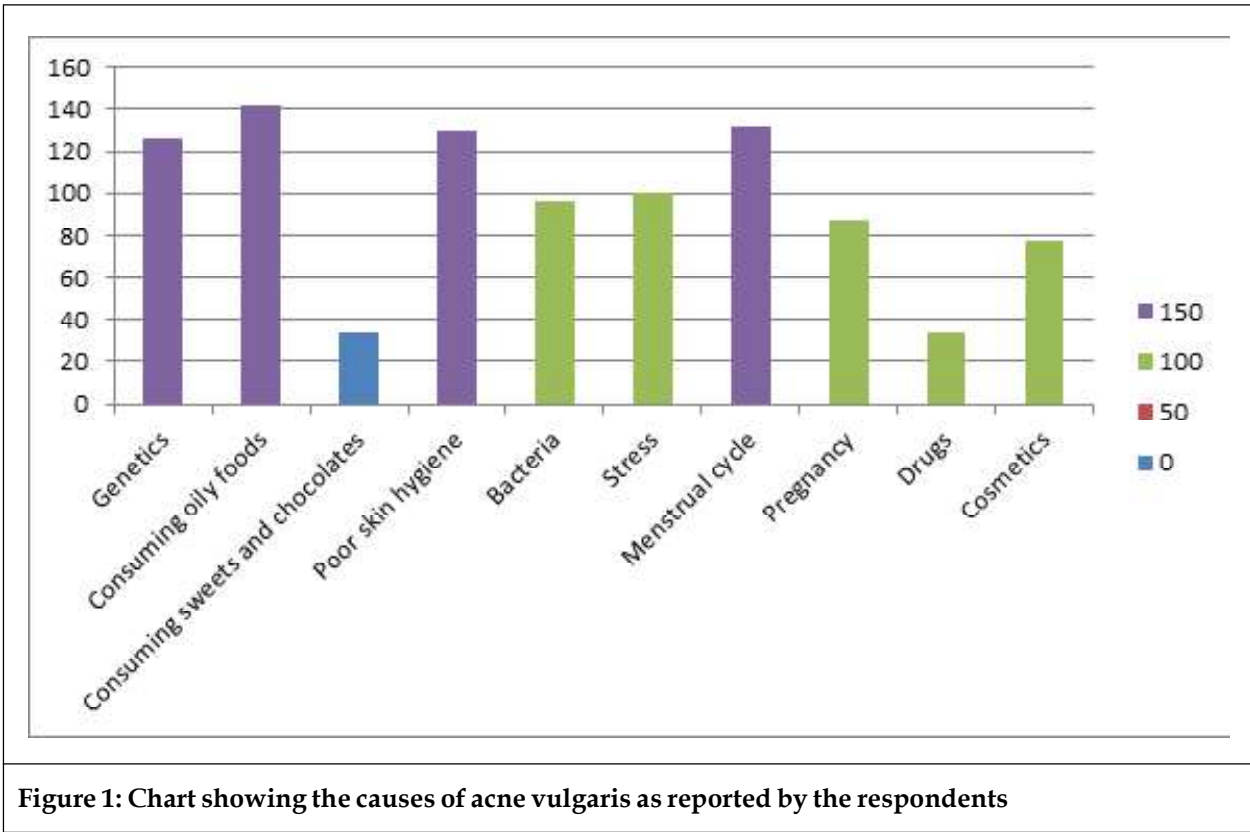
Figure 1: Chart showing the causes of acne vulgaris as reported by the respondents

will resolve without medical intervention. Moreover according to the study 130(53.3%) strongly agree and believe that visiting the dermatologist is needed for severe acne, 78(32.0%) agree that visiting the dermatologist is needed for severe acne, 20(8.2%) strongly disagree that visiting the dermatologist is needed for severe acne, 16(6.6%) disagree that visiting the dermatologist is needed for severe acne. In addition, the summary of the finding showed that majority 215(88.1%) heard about acne, of which their information sources were mainly from family and friends 91(37.4%) and Internet/Social media 90(37%). Most students 169(69.7%) knew that
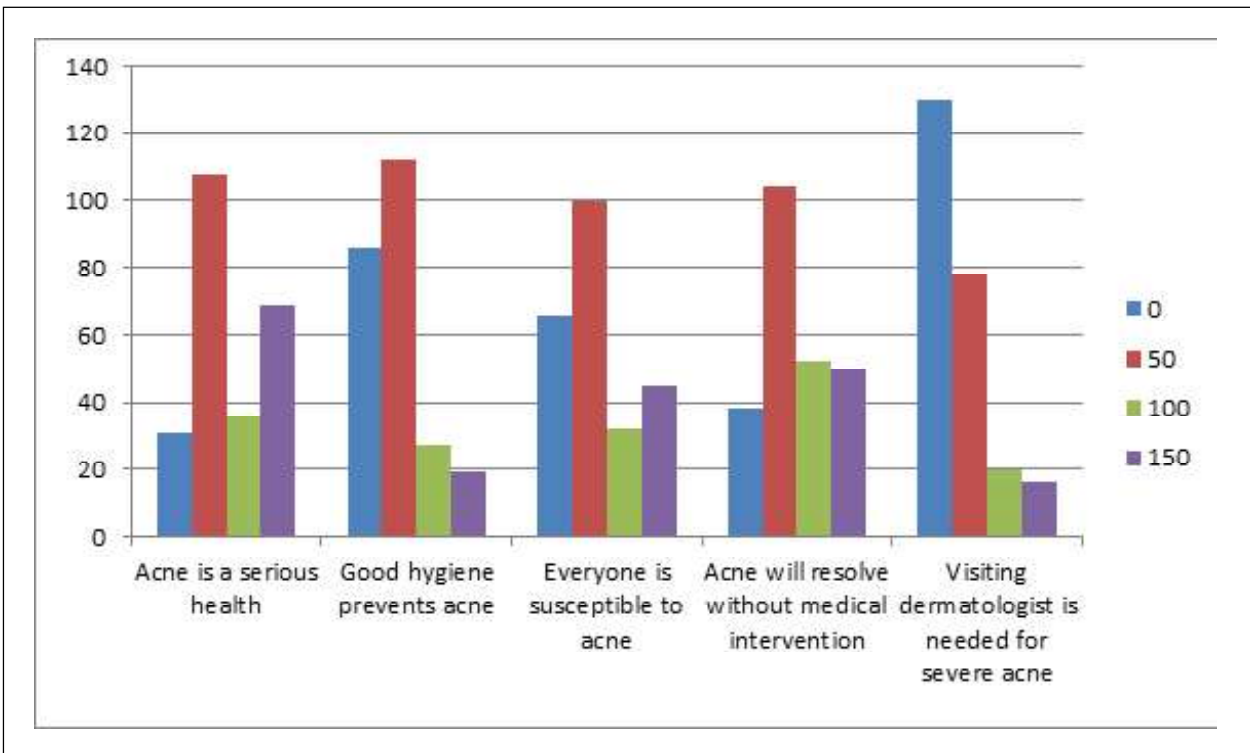

Figure 2: Chart showing extent of perception of Acne vulgaris among the respondents

acne was a chronic inflammatory condition that causes spots and pimples especially on the face, neck, shoulders and chest, they also knew the various causes of acne and most believe 190(78.8%) it worsens by picking/rubbing/squeezing and it's treatable 203(83.6%). Generally, the overall level of knowledge was good, almost all questions testing knowledge had (> 50%) (Figure 2).

4. Discussion

To provide insight into the knowledge and perception of acne vulgaris among undergraduate students. A total of 243 students participated, with the data revealing significant demographic trends in relation to their understanding and experiences of acne vulgaris among AL-Hikmah University students.

A majority of the respondents 215(88.1%) had heard about acne vulgaris, indicating a high level of general awareness. Sources of information were predominantly family and friends 91(37.4%) and the internet 90(37%). These results align with the study conducted by Israel *et al.* (2022) in the University of Nigeria, Enugu campus, Enugu state, Nigeria, to assess the knowledge and treatment behavior of acne vulgaris among 319 female students in which majority 304(95.3%) had good knowledge and that their information sources were mainly from friends and family members 150(47.2%) and internet/social media 135(42.3%). However, a lower percentage of respondents reported receiving information about acne from health workers 5(2.1%), which highlights the limited direct involvement of healthcare professionals in disseminating knowledge about acne among students. This finding is consistent with research by Smith *et al.* (2020) suggesting that young people often rely more on informal sources rather than professional health services for skin-related issues.

In this study, 169(69.7%) of the respondents expressed the level of understanding of acne vulgaris as related to chronic inflammatory condition. This demonstrates a good level of accurate knowledge. However, misconceptions persist, as 14(5.7%) believed acne to be a beautifying spot, and 22(9%) admitted not knowing the meaning of acne vulgaris. This suggests that while most students are aware of meaning of acne, a subset of the population still holds incorrect beliefs, a trend also noted by Darmawan and Ismail (2020), who found that a significant number of young adults 537(67.8%) out of 793 subjects held non-medical views of acne.

The respondents' perceptions of acne reflect a range of views, with 139(57%) agreeing or strongly agreeing that acne is a serious health problem. Additionally, 198(81.1%) agreed that good hygiene plays a role in preventing acne, mirroring the findings of studies like that of Kim *et al.* (2019), which reported 603(50.4%) out of 1200 adolescents engage in self-care practices for acne. Notably, 130(53.3%) strongly agreed that seeing a dermatologist is necessary for severe acne, aligning with global studies that indicate the importance of professional consultation for managing more severe skin conditions (Kellett and Gawkrodger, 2014).

However, a notable 104(42.6%) of respondents believed that acne could resolve without medical intervention, reflecting an overreliance on self-care and non-medical advice. This perception align with findings from earlier studies which indicate that 411(85.4%) out of 482 students in University of Jos, Nigeria, prefer to experiment with home remedies or over-the-counter products before seeking medical help (Lynn and David, 2021).

Moreover, 87(35.8%) of students reported using products from skincare vendors, while only 30(12.3%) sought help from healthcare workers. This finding aligns with existing literature which reported that young people 244(56.0%) out of 432 often opt for non-prescription treatments over professional medical advice (Kellett and Gawkrodger, 2014). Interestingly, despite the preference for non-medical treatments, 124(51%) respondents of those who used various treatments reported success, showing that many students are satisfied with over-the-counter and non-prescription treatments.

The study also investigated the relationship between demographic factors such as gender and knowledge of acne vulgaris. The chi-square test results indicate a statistically significant relationship between gender and knowledge, with females displaying higher levels of knowledge about acne compared to males ($p < 0.05$). This finding is consistent with Haya *et al.* (2022) study that have highlighted an increase in knowledge among females compared to the males.

The data analysis further revealed a significant relationship between the level of knowledge and perception of acne vulgaris among the students ($p < 0.05$). This suggests that students with higher knowledge tend to

have more accurate perceptions of acne and its management. This aligns with the Health belief model theory, which suggests that people's beliefs about whether or not they were susceptible to disease, and their perceptions of the benefits of trying to avoid it, influenced their readiness to act.

5. Conclusion

Overall, more than half of the respondents show high level of knowledge and perception on acne vulgaris. As majority of males students demonstrated lower levels of knowledge about acne, this results emphasize the need to develop educational programs that target male students who may not have sufficient information about acne to improve their awareness and as notable respondents believed that acne could resolve without medical intervention, this is a concern in the treatment perception and arise the need to increase health education on skin health, particularly emphasizing on scientific evidence based treatments over non-medical choice of treatment.

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