

**Effect of Educational Guideline on performance and attitude of
Blind Adolescent Students Regarding Acne Vulgaris**

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Abstract

Acne is a chronic inflammatory disease known to occur in adolescent age group. There are many myths and misconceptions in patients as well as health care providers regarding the causes and treatment of acne **Aim:** The present study was aimed to evaluate the Effect of Educational Guideline on performance and attitude of blind adolescent students' regarding Acne Vulgaris. **Subjects and Method:** A quasi-experimental research design was utilized in this study that was conducted at Al-Nour and Al –aml School for the blind, preparatory and secondary of Beni-Suef and El Noor schools of visual handicapped at Tanta city. Convenience sampling of 100 blind adolescent students of the previously mentioned settings. The following study tools were used (pre/posttests): 1) Students' interviewing to assess their knowledge as regards acne vulgaris. 2) An observational checklist to evaluate studied students' practices such as skin care and face massage. 3) Attitude scale to assess adolescent students' attitude regarding acne vulgaris. **Results:** There were significant differences regarding knowledge, practices (face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises) and attitude about acne vulgaris between pre, post and follow up educational guideline. **Conclusion:** The present study concluded that, the educational guideline had a positive effect on performance and attitude of blind adolescent girl students regarding acne vulgaris. **Recommendations:** An orientation program should be prepared for such group of students regarding acne vulgaris. Increasing awareness of blind adolescent students about physical and physiological changes and needs during this stage.

Keywords: Performance, Acne vulgaris, Blind adolescent, Educational guideline.

Introduction

Adolescence is a transitional period from childhood to adulthood and characterized by a spurt in physical, emotional, endocrinal and mental growth with a change from complete dependence to relative independence. The stage of adolescence for a girl and a boy is a period of physical and psychological preparation for safe motherhood and fatherhood.^(1.)

Blindness is a troubling physical condition with deep emotional and physical effects. It leads to major variations in lifestyle, habits which may cause problems in physical, psychological and social adjustment of blind adolescent. It reasons a serious effect on the adolescent girls and boys, family and community. it is considered the most traumatic sensory impairment^(2.-4). According to the World Health Organization (WHO), the incidence of vision impairment was 148 million worldwide and 110 million cases of low vision that could be at hazard of becoming blind. Around 90%, of the world visually impaired people, live in the developing countries, this means that 9 out of 10, who are visually diminished live in the developing countries as well⁽⁶⁾.

Acne vulgaris is a chronic inflammatory disease of pilosebaceous glands caused by blockage of hair follicles with dead skin cells and oil from the skin^(7.8). It affects mainly the face, neck, upper trunk, upper arms and back. It is characterized by

seborrhea (red scaly skin), comedons (black white heads) papules, nodules and pustules which sometimes heal with scarring⁽⁹⁾. Acne vulgaris is almost a common skin disorder in western societies that disturbs 79 percent to 95 percent of the adolescent population. The incidence of acne in boys increased from 40 percent at age 12 to 95 percent at age 16 years old. It increases in girls from 61 percent at age 12 to 83 percent at age 16 years old⁽¹⁰⁾. It is among the common dermatological conditions that affect up to 85 percent of adolescents.

Acne vulgaris has a multifactorial pathology that results from the interplay of genetic and environmental variables. Some foods high in carbohydrates, chocolate and some medications such as steroids that may predispose to acne of varying intensity or overproduction of oils in the skin's sebaceous follicles are concerned risk factors,⁽¹¹⁾.

Acne is not associated with extreme morbidity and mortality; it may, however, have major psychosocial effects⁽⁹⁾.

The acne has a considerable impact on emotional health, physical scarring and disfigurement and associated with behavioral difficulties in adolescents. Similar findings have been observed in several studies which concluded that acne is associated with psychological disturbances and depression. Acne has

been shown to have a profound effect on self-image and on the quality of life. The effects of this disorder are anxiety, depression and a decline in social functioning. ^(7,10,12). In a multinational study, it was reported that teenagers' social functioning, vocational and even academic performance was disturbed by acne vulgaris ⁽¹¹⁾.

Management of acne vulgaris includes various non-pharmacological and pharmacological methods. Before the initial pharmacological treatment, in order to cope with acne vulgaris symptoms, it is more important to provide accurate and sufficient information to make necessary arrangements in the life style of the adolescent. To support clinical practice, recommendations are made for three categories of acne severity: mild, moderate and severe ⁽¹³⁾. The modification of the dietary habits, weight control, and stress management, gaining and maintaining exercise habit has positive influences on the problem. In addition, adolescent's commitment on responsibility and participation in own care take an important place in the reduction or prevention of health problems such as acne vulgaris ⁽⁴⁾. In spite of, professionals' performance in lifestyle counseling is suboptimal, yet it is very important that healthcare providers promote healthful behaviors for adolescent with acne vulgaris problem ⁽¹⁴⁾.

Pediatric nurses play a key role in informing adolescents about acne vulgaris problem and providing consultations and educational guidelines on how to improve their quality of life, as well as encouraging the recognition of this common condition. In addition, helping them to cope with these symptoms through lifestyle change, nutritional supplement, herbal, and hypnosis therapy. Furthermore, encourage adolescent girls and boys to participate in aerobic exercise three times a week to promote sense of well-being, decrease fatigue, and reduce stress and pain. Behavioral counseling and stress management are integral part of management ⁽¹⁰⁾. Furthermore, dietary recommendations to eliminate skin sensitivity include increasing fiber, calcium a complex carbohydrate, fat, red meat, dairy products, decreasing (caffeine, salt and sugar). Recent research suggests that, vitamin B supplements, primarily vitamin B6 in a complex, magnesium and fish oil supplements (omega-3 fatty acids) also, may help relieve stress and mode improvement ⁽¹⁵⁾.

Educational guidelines for acne vulgaris problem management should include: frequent face wash with warm water and face massage during washing, exercise (moderate exercise and deep breathing brings more oxygen to the blood which relaxes the body, walking alleviates irritability, tension and improve body's blood circulation), rest, iron

supplementation, decreasing intake of caffeine (tea, coffee, coals and chocolate) to reduce anxiety. As well, decreasing intake of diets high in glycemic lead to reduce acne, and eating six small meals per day to prevent hypoglycemia, weight control and increasing fluid intake ⁽¹⁶⁾. So, there is a very urgent need to focus on the importance of care for acne and its complication, however the opportunity of care is often missed ⁽¹³⁾.

Significance of the study

Emotional health issues, physical scarring and disfigurement, behavioral challenges and increased medical costs have been associated with Acne vulgaris. It is expected to spend £ 100 million annually on over the counter acne products in the United Kingdom alone. Moreover, patients who experience side effects from drugs are treated longer ⁽⁹⁾. There are various myths and misconceptions in patients as well as some of the health practitioners concerning the causes and treatment of acne. The awareness, attitude and behaviors regarding acne have many misunderstandings and multi-factorial causes. According to Allayali &, Asseri, et al., 2017 ⁽¹¹⁾ study 80.8% of the 852 French people surveyed did not think that acne was a disorder, but rather a natural stage of adolescence. There are many incorrect beliefs and misunderstandings regarding acne vulgaris among individuals⁽⁷⁾. In Egypt, education about acne

vulgaris problem for adolescents is very limited through the formal school system. Both national and subnational surveys have stated that Egyptian adolescent girls and boys need basic information on puberty associated changes because they often receive information from sources that may be misleading or inaccurate. Surveys have revealed that both adolescent girls or boys and their parents should get more information on these topics to promote healthier practices regarding these issues ^(6,17).

Visually, impaired girl or boy may be less likely than other girl or boy in her age to notice the changes in physical development that beginning to undergo for their bodies, and may need some more detailed explanations if adolescent can't see the pictures and diagrams in the typical books for teens and preteens. In addition, this group of adolescents may face lots of educational challenges and face difficulties in reaching the sources of correct information. Many girls and boys shy about asking for details, so for all these reasons, it is important to approach the subject especially for these sensitive population. The nurse can be supporter for blind adolescents meeting their needs by designing programs to improve their healthy life style or even confining in teaching classes focusing on the targeted areas of nutrition, physical activity, stress management, personal hygiene, injury prevention and health protection from hazards ⁽¹⁸⁾. Therefore, the

current study aimed to evaluate the outcomes of educational guidelines on performance and attitude of blind adolescent students regarding acne vulgaris problem.

Aim of the Study

This study was aimed to evaluate the **effect of educational guideline on performance and attitude of blind adolescent students regarding acne vulgaris.**

- This aim was achieved through the following:
- Assess adolescent students' knowledge and practices regarding acne vulgaris
- Assess students' attitude regarding acne vulgaris
- Develop, implement and evaluate educational guideline based on **performance and attitude of blind adolescent** students' regarding acne vulgaris .

Research hypothesis:-

After implementing educational guideline, it is expected that blind adolescent students' performance and attitude will improve regarding acne vulgaris.

Research design: A quasi-experimental design was utilized to conduct this study

Setting: The present study was conducted at Al-Nour and Al-aml School for the blind, preparatory and secondary of Beni-Suef.and El Noor schools of visual handicap of Tanta city.

Subjects and Method

Subjects

Convenience sampling was included 100 of blind adolescent students. A total number of students were 182 blind adolescent students, the studied blind adolescent students selected according to the following criteria:

- Blind adolescent aged from 11 to 18 years old.
- Blind adolescent students free from medical health problems.

Tools of data collection

I. Students' interviewing schedule (pre/post and follow up tests)

It was designed by the researchers after review of the relevant and related literatures ^(9,14), and written in simple Arabic language, to collect data related to:

- Characteristics of the participant blind adolescent students which included, age, sex, educational level and residence
- Blind adolescent 'students' knowledge about acne vulgaris such as; definition, causes, manifestations, common sites, and types, affecting factors, complications effect, and treatment and nursing management of acne vulgaris. As well as their source of information about acne vulgaris

Scoring system: Knowledge content was divided into 18 questions and each question was assigned to three score levels: Complete and/or correct answer was scored (3), while incomplete or correct answer was scored (2), and don't know or wrong answer was scored (1).

The total score was categorized into either high level (from 70% and more) or low level (less than 70%) from total score (54).

II- An observational checklist (pre/post and follow up tests).

Adopted from; Academy of Dermatology 2016⁽¹⁶⁾, Allayali &, Asseri, et al., (2017)⁽¹¹⁾, Hazel et al., (2019)⁽¹⁵⁾ and Hassan et al., 2019⁽⁸⁾. It was filled in by the researchers to evaluate blind adolescents' practices in relation to acne vulgaris as face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises. Alpha Cronbach test = 0.87.

Scoring system: Each step was assigned to two score levels, which are: done was scored (2), and not done scored (1). The total score was categorized into either competent (from 70% and more) or incompetent (less than 70%) from total score as the following: face and skin care, skin massage, methods of drying (15 steps) and total score = 30; warm compress (5 steps) and total score = 10; and exercises

(5 steps) and total score = 10. Alpha Cronbach test = 0.85.

III- Adolescent student's attitude (Likert scale):

(pre/post and follow up tests). Adapted from **Suen et al. (2006)**⁽¹⁹⁾. It was used to assess adolescents' attitudes regarding acne vulgaris as cleansing, diet, sleep, stress, exercise, drinking water, face touching, face washing, put traditional medicine, consult doctor, advise self-medication to friends/family is part of self-care, follow-up for acne important and do you feel depressed when you get acne. Testing reliability of the scale items using alpha Cronbach test = 0.83.

Scoring system: **attitude (Likert scale):**

Likert scale consists of 13 statements and scores as follows: (3) score for agree, (2) score for neutral and (1) score for disagree. The total score level of attitude was classified into: Positive attitude: From 80% and more, while indifferent attitude: < 80% -60%, and negative attitude: Less than 60%.

Validity and reliability of study tools

Content validity was ascertained by a group of experts (5) including 3 Pediatric Nursing, 2 professors of dermatology. Their opinions were elicited regarding to the tools format layout, consistency, scoring system. The tools content was tested regarding to the knowledge accuracy, relevance and competence. Reliability of all items of the tools was done. The reliability test of was

established by using the Cronbach alpha to assess internal consistency construct validity. Cronbach alpha $r= 0.87$.

Administrative design

An official approval was obtained from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance and predictable outcomes of the study.

Pilot study

A pilot study was conducted on 10% of the total study subjects to test the clarity and practicability of the tools, and suitability of the setting. Those who participated in the pilot study were later included in the study as there were no modifications on the tools.

Ethical considerations

Approval to conduct the study was obtained from the director of the previous selected setting. All students who agreed to participate and meet the inclusion criteria were conversant about the study aim and their rights according to research ethics to participate or not in the study. Then, they provided their consent to participate in the study.

Procedure

The study was started and completed within 12 months from beginning of May 2019 to April 2020. The aim of the study at first was simply explained to the involved adolescent students. The researchers started to collect data from the adolescent

students at the selected settings. Data were collected 2 days/week (Sundays & Tuesdays) during the morning period in the previously mentioned settings from 9.00 a.m. to 1.00 p.m.

The tools were complete by the researchers according to health condition of students under the study. Theory assessment was done individually pre-intervention. Then evaluated pre/post and follow-up individually (half an hour for each one). Otherwise about 10 minutes for attitude scale.

- Educational guidelines were advanced based on analysis of the actual educational needs of students under study in pretest.
- Content of the guidelines program was prepared in simple Arabic language by the researchers, then in Brill manner by specialist, consistent with the related literatures and adolescent students' level of understanding.
- Educational guidelines program were written in theoretical and practical sessions. Subjects were distributed into small groups (6 – 7) students and repeated sessions included all students. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each adolescent student was directed by simple instructions and then orientation about the aim, contents and expected outcomes was done.

- The theoretical sessions were taken in 2 sessions (each session for 25 minutes) and cover the following items: definition, causes, manifestations, common sites, and types, affecting factors, complications effect, and treatment and nursing management of acne vulgaris.

The first and second sessions: knowledge about acne vulgaris:

These sessions include informing blind adolescent students about definition of can vulgaris, causes, manifestations, common sites, and types. affecting factors, complications effect, and treatment and nursing management of acne vulgaris. Each session lasts 25 minutes. The sessions were carried out through lectures and group discussions and use of learning aids and tools that are specifically developed for the blind and visually impaired. Examples of tools used are text-to-audio systems, recordings, and other audio devices. Full, specific descriptions were used in teaching at all times. In most cases, indistinct words and expressions can result in misunderstanding or failure to grasp specific meanings. For example, instead of saying, "Pick up that phone over there," say "Pick up that phone on the desk next to the bag." Keep learning tools organized and in their own designated places. This procedure will allow students to find learning materials and supplies that are wanted on a regular basis without having to

constantly look for certain supplies. Sometimes need special learning environments to help them better interpret and understand the world around them such as describing actions and visions in explicit detail, or continue reading. Brill booklets were distributed as handout.

Third and fourth sessions: The practical sessions were taken in 2 sessions (each session for 25 minutes) and cover the following items: face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises. The practices session conducted individually after evaluating them individually pre-intervention. Then assessed post and followed up individually (half an hour for each one). Sessions were carried out through demonstration and re-demonstration by simulation and models and concentrate in tactile exploration. The researchers explained to the students about the paraphernalia used during acne vulgaris and how to care her skin. Covering the eyes and doing the things that instruction to the students. This gives an idea for suggestions or adaptations that will be useful to them. Students were informed to be in contact with the researchers by telephone for any guidance.

- Evaluation for the effect of guidelines on the studied students using the pre-constructed tools as follows:

-Posttest was done after application of the guidelines.

-Follow up test after two months later by using the same tools.

Statistical Design

The data collected were organized, sorted, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS). They were presented in tables and charts using numbers, percentages, means, standard deviations, t-test and Chi-square (χ^2) test. Level of significance was considered $p < 0.05$.

Results

Table (1) demonstrates the percent distribution of the socio-demographic characteristics of the blind adolescents students. It shows that 61.0% of the studied adolescent students their age ranged between 15-<18 years with a mean age of 15.9 ± 2.3 years. Concerning their educational level, 50.0% of them have preparatory school. As regards residence, 60.0% of them reside rural areas. In relation to mothers' occupation and education 45% of them were working and had high education.

Figure (1) illustrates that the sources of information for blind adolescent students were friends (64%), followed by teachers (16%), then mass media (12%), and the least family (8%).

Table (2): illustrates percent distribution of blind adolescent students' knowledge regarding acne vulgaris Pre, post guideline implementation and at Follow up. Results indicates significant improvement in adolescent students' knowledge regarding acne post and follow-up tests (mean percent = 91.7 ± 2.9 and 83.3 ± 3.2 respectively) compared to pre – test (24.1 ± 9.5), with t – test = 52.8 and 17.5 respectively) at $p < 0.05$.

Figure (2) describes the studied blind adolescent students' total knowledge score. The majority of them (82%) had unsatisfactory level before the guideline implementation, which improved for most of them (93.0%), to satisfactory knowledge immediately post guideline implementation. However, the same figure illustrates that, the majority of studied adolescent students (85%) had satisfactory level in their total knowledge scores in follow up phase of guideline implementation, with a highly statistically significant difference ($P < .0001$).

Table (3): Reveals the percent distribution of blind adolescent students' practices regarding acne vulgaris before, immediately after guidelines implementation and at follow up. Results indicated significant improvement in adolescent students' practices as regards post and follow - up tests (mean percent = 93.8 ± 2.2 and 86.2 ± 4.5 respectively),

compared to pre – test (20.3 ± 6.8), with T1 and T2 = 72.4 & 13.8 respectively $p < 0.05$.

Figure (3) illustrates the studied blind adolescent students' total practices score. Most of the studied adolescent students (92%) had incompetent level before the guideline implementation; however significant improvement was observed immediately post guidelines implementation that most of them (90%) had competent practices. Furthermore, the same figure shows that the majority of studied student (85%) had competent level in their total scores of practices during the follow up phase of guideline implementation with a highly statistically significant difference ($P < .0001$).

Table (4): points out that there is a highly statistically significant improvement in blind adolescent students' attitude post-program implementation. As adolescent students' positive attitude increased from 20% pre intervention to 90% and 85% post intervention and follow up regarding acne vulgaris respectively.

Table (5) shows that, there were a highly statistical significance positive correlations between knowledge scores, practice, attitude and adolescents' age, educational level, sex and residence at the post- and follow up guideline implementation ($P < 0.001$). However, this table shows that, there were statistically insignificant

correlations between adolescent students' knowledge, practice, attitude scores and their age and educational level, sex and residence at pre-guideline implementation.

Table (1) Percent Distribution of of the Blind Studied Adolescent students Socio-Demographic Characteristics (n=100).

Socio-demographic characteristics	N	%
Age/years		
11-<13	9	9.0
13-<15	30	30.0
15-<18	61	61.0
Mean ± SD	15.9 ± 2.3	
Birth order		
First	20	20.0
Second	45	45.0
Third	20	20.0
The last	15	15.0
Sex		
Male	35	35.0
Female	65	65.0
Educational level		
Primary school	10	10.0
Preparatory school	50	50.0
Secondary school	40	40.0
Residence		
Urban	40	40.0
Rural	60	60.0
Mothers' education		
Primary	25	25.0
Secondary	30	30.0
High	45	45.0
Mothers' occupation		
Not working	55	55.0
Working	45	45.0

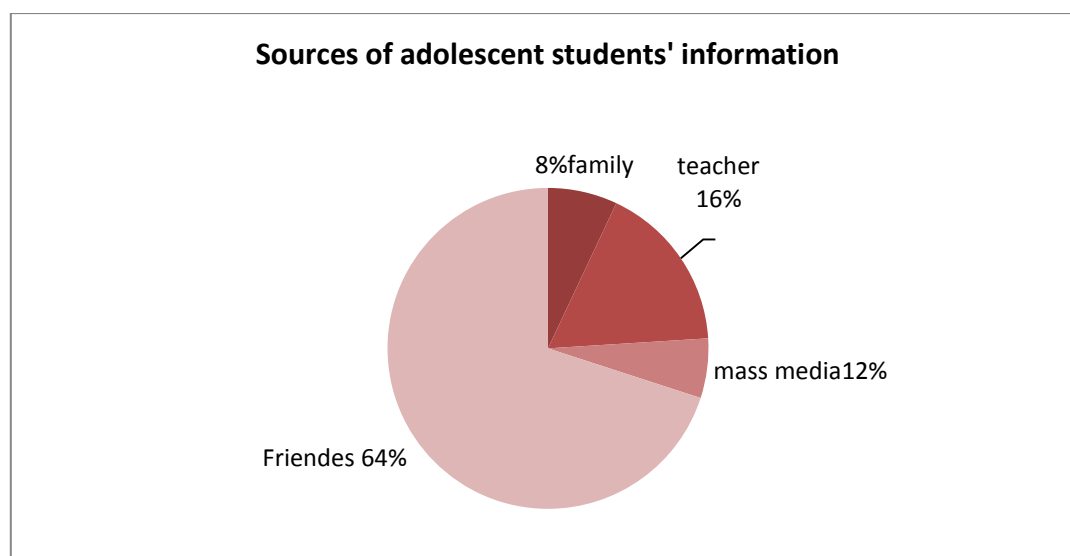


Fig (1) Blind adolescents' Students Sources of Information Regarding Acne Vulgaris (n=100).

Table (2): Percent Distribution of Blind Adolescent Students' Knowledge regarding Acne Vulgaris Pre, Post guideline implementation and at Follow up (n=100).

Knowledge about Acne Vulgaris	Students' satisfactory knowledge		
	Pre-test	Post- test	Follow up
	High	High	High
	%	%	%
Definition	22.0	92.0	85.5
Causes	20.0	96.0	82.0
Signs and symptoms	35.0	90.0	85.0
Common sites	30.0	92.0	87.5
Types	20.0	96.0	85.0
Affecting factors	15.0	94.0	88.0
Complications effect	35.0	91.0	79.0
Treatment	23.5	92.0	84.3
Nursing management	19.0	85.0	78.0
Mean ± SD	24.1±9.5	91.7±2.9	83.3±3.2
T-test	T1= 52.8* pre- versus post- guideline implementation		
P value	T2 = 17.5* post - versus follow- up guideline implementation		

* Significant P=< 0.05

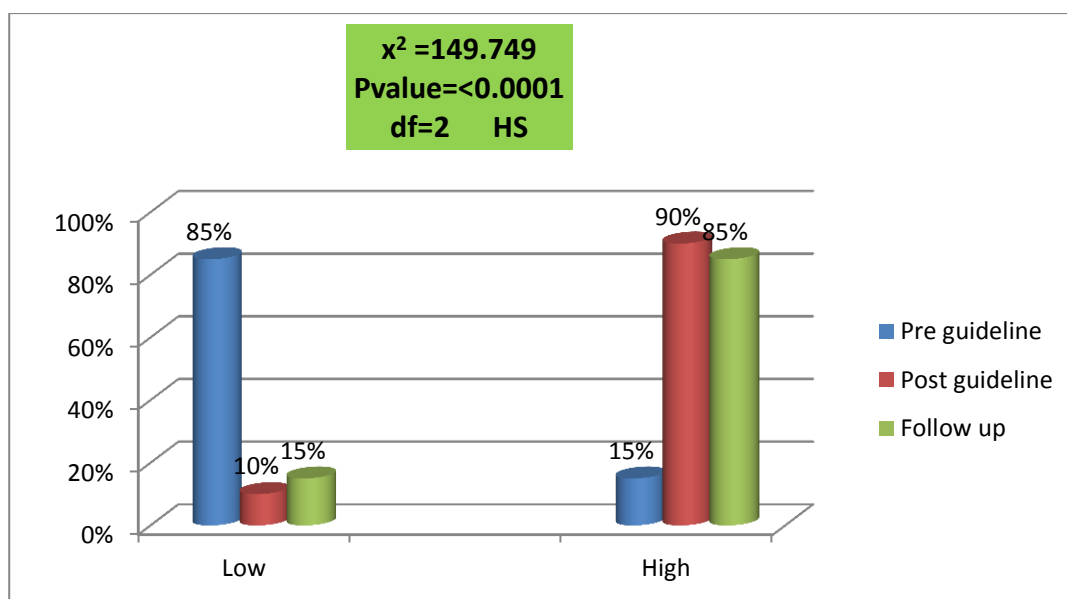


Figure (2): Total Knowledge Score of Blind Adolescent Student about Acne Vulgaris throughout the Guideline Phases (n = 100).

Table (3): Percent Distribution of Blind Adolescent Students' Practices Regarding Acne Vulgaris Before, immediately after guidelines implementation and at follow up. (N=100)

Practices regarding Acne Vulgaris	Students' competent practices		
	Pre-test	Post- test	Follow up
	Competent	Competent	Competent
	%	%	%
Skin wash and skin massage	18.0	92.0	85.5
Drying methods	30.0	96.0	88.0
Wash hand	35.0	90.0	80.0
Drinking water	40.0	95.0	85.0
Changing diet	19.0	94.3	92.0
Applying topical medications	17.0	95.1	89.0
Warm compress	19.0	94.3	92.0
Exercises	17.0	95.1	89.0
Mean \pm SD	20.3\pm 6.8	93.8\pm2.2	86.2\pm4.5
T-test	T1 = 72.4* pre-intervention versus post-intervention		
P value	T2 = 13.8* post -intervention versus follow-up		

* Significant P = < 0.05

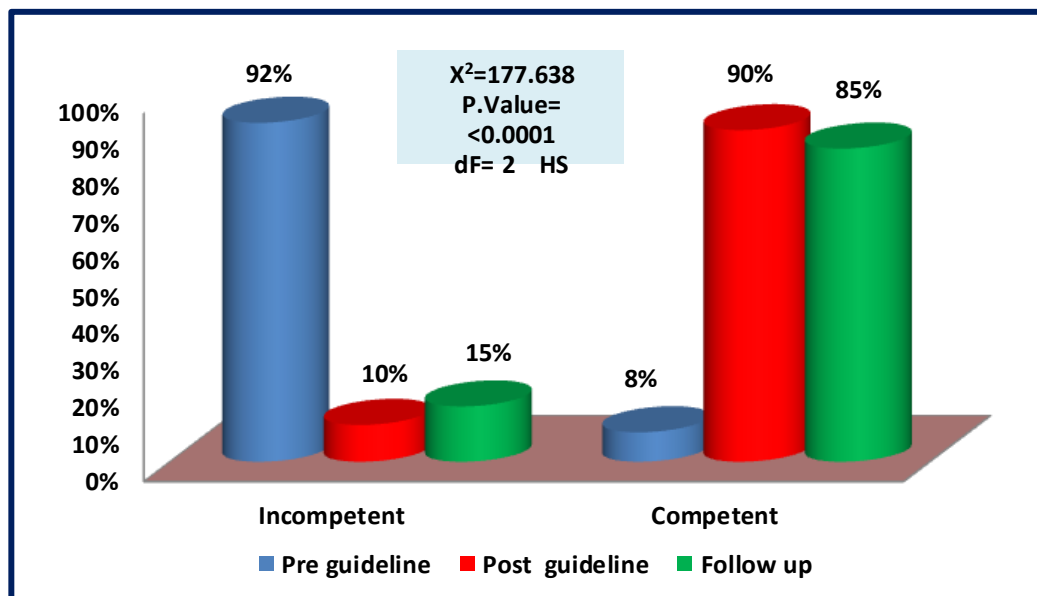


Figure (3): Total Practices Score of the Studied Adolescent Students about Acne Vulgaris (Pre/Post Implementation) (n=100).

Table (4): Percent Distribution of Studied Adolescent Students as Regards their Attitude related to Acne Vulgaris (Pre/Post Implementation) (N=100).

Adolescent s' attitude	Total Attitude		
	Pre-test	Post-test	Follow up
	%	%	%
Positive	20.0	90.0	85.0
Indifferent	40.0	10.0	12.0
Negative	40.0	0.0	3.0
T-test	T1 = 42.6* pre-intervention versus post-intervention		
P value	T2 = 12.2* post -intervention versus follow- up		

Significant $P=< 0.05$

Table (5): Correlation coefficient between adolescent students' total knowledge, practices and attitude regarding Acne Vulgaris guideline implementation (pre, post & follow-up) characteristics and adolescent students' demographic (N=100).

Variables		Age		Educational level		Sex		Residence	
		r	P	r	P	r	P	r	P
Knowledge	Pre program	0.72	>0.05*	0.145	>0.05*	0.377	>0.05*	0.166	>0.05*
	Post program	0.544	0.001**	0.245	0.001**	0.246	0.001**	0.435	0.001**
	Follow up	0.451	0.02*	0.364	0.001**	0.422	0.001**	0.413	0.001**
Practices	Pre program	0.22	>0.05*	0.24	>0.05*	0.172	>0.05*	0.120	>0.05*
	Post program	0.433	0.001**	0.405	0.001**	0.263	0.001**	0.322	0.001**
	Follow up	0.532	0.001*	0.42	0.001**	0.344	0.001**	0.481	0.001**
Attitude	Pre program	0.42	>0.05*	0.32	>0.05*	0.166	>0.05*	0.130	>0.05*
	Post program	0.533	0.001**	0.433	0.001**	0.243	0.001**	0.282	0.001**
	Follow up	0.432	0.001*	0.222	0.001**	0.424	0.001**	0.461	0.001**

* Statistically insignificant ($p > 0.05$)

** Highly statistically significant correlation ($P < 0.001$)

Discussion:

Acne is a chronic inflammatory pilosebaceous disorder, characterized by the growth of comedones, erythematous papules, pustules, and/or nodules that may be followed by scarring.⁽⁸⁾ Acne affects the face more than the trunk and is most common in individuals aged 12 to 24 years old. Nearly 85%, with a typical onset of acne is during adolescence or early adulthood. This study aimed to evaluate the outcomes of educational guidelines on awareness of blind adolescents regarding acne vulgaris⁽¹³⁾.

The present study, revealed that the mean age of the studied adolescent students is 15.9 ± 2.3 years old and more than half were girls (table 1). These findings were supported by (Uslu et al., 2018)⁽²⁰⁾ who found in their study about Acne: prevalence, perceptions and effects on psychological health among adolescents in Aydin, Turkey, that the study population consisted of 303 girls and 260 boys between the ages 13 and 19, and the mean age was 15.24 ± 1.05 years. Additionally, **Markovic, et al.,(2019)**⁽²¹⁾ who found in their study about "adolescents' self-perceived acne-related beliefs: from myth to science", that, more than half of the study population were girls .

As regards adolescents' sources of information about acne vulgaris more than two thirds of the studied children reported

that, friends were their source of information. (Fig. 1). This may be attributed to that many of the adolescents are shy about asking for details or lack of opportunity to conduct self-search about the information because of their blindness and limited health programs concerned with acne vulgaris among blind population in Egypt. This finding is supported by **Tameez et al., (2019)**⁽¹²⁾ who reported in their study regarding "Assessment of Knowledge, Attitude, and Practices Regarding Self-medication for Acne among Medical Students", that the most common source of information was acquaintances. Additionally, **Corey et al ,(2013)**⁽²²⁾ stated that, the majority of students are getting information from non-physician sources. However, the present study findings disagreed with findings **Alajlan et al., (2017)**⁽²³⁾ who reported that, doctors were the most common sources of information. Moreover, **Mosbeh, Faheim & Hassan,(2016)**⁽⁴⁾ who reported in their study about "Awareness of Blind Adolescent Girl Students Regarding Premenstrual Syndromes: Outcomes of Educational Guideline in Egypt", that friends were the main source of information for the majority of studied students.

The present study highlighted the high prevalence of insufficient and inappropriate knowledge about acne among the studied adolescents before guidelines

implementation. This may be due to insufficient education concerned with acne as an important health problem and children were depending on nonprofit source for their knowledge about acne which was their friends as reported by more than two thirds of the studied adolescents. These findings are in agreement with **Uslu et al., 2018 and Talasiewicz1 et al ,(2012)** ^(20,24) who reported the high deficiency of knowledge and wrong beliefs about acne among adolescents and indicated the urgent need for efficient education about acne vulgaris in order to promote safe treatment and lower the risk of complication and promoting adolescents' quality of life.

However, the present study revealed significant improvement regarding total knowledge score about acne vulgaris among the studied adolescents immediately after the guidelines implementation and during the follow up compared to high unsatisfactory level among them preprogram. This Improvement may be attributed to adolescents' high interest in the topics presented and active involvement and participation in the educational sessions with frequent revision of information these findings are in agreement with **Allayali et al, (2017)**⁽¹¹⁾ and **Mohamed A et al, (2018)**⁽²⁵⁾ who stated that, Educational programs should be directed in schools and

through the mass media to promote awareness that acne is a disease that can be managed and controlled effectively^(9,21). In addition, findings of the present study is in agreement of **Koch et al,(2008)**⁽²⁶⁾ who concluded that there was significant improvement regarding adolescents' knowledge and compliance to acne treatment post education and during follow up compared to base line knowledge score before education interventions .

Regarding adolescents' self-care practices for acne the present study demonstrates that the majority of the students practiced competent care regarding acne immediately post guidelines implementation and during follow up. Most of them practiced skin washing and massage, proper face drying, drinking water, changing diet, applying topical preparations. In addition, almost all of them wash hands, apply warm compresses and practice exercises. There was significant improvement regarding total practices score regarding adolescents' care of acne immediately post guidelines implementation and during follow up compared to pre guidelines implementation total practices score.

The incompetent pre guidelines practices score may be attributed to the insufficient and incorrect adolescents' knowledge regarding acne. In addition, lack of education and inadequacy of learning aids

for blind students may have an impact on their access to efficient source of information and acne self-care sessions. In addition, the blind adolescents may experience lowered self-confidence regarding their capacity to have independent self-care due to long lasting need for external assistance for fulfillment of daily life activities. On the other hand, the significant improvement regarding the adolescents' practices total score post guidelines implementation is expected to be attributed to the knowledge they gained during the sessions and the active participation in the training that considered their learning difficulties and the challenges associated with practicing care of acne for the blind adolescents. In addition, active involvement of the adolescents during the practical sessions helped them to recognize the probable difficulties they may encounter while caring for acne and they learned how to overcome. In addition, active involvement of the blind adolescents in the practice sessions may participate in promoting their self-confidence regarding their capacity to conduct self-care with minimal assistance and supervision. These findings are in agreement with **Lavers .,(2014)** ⁽²⁷⁾ who reported that adolescent' education about acne care help them to overcome the challenges associated with the long-term course of acne treatment and reduces the

disappointment associated with difficulties they face due to delayed treatment results, promote their adherence to acne care plan and maximizes treatment efficacy. In addition, the present findings are consistent with **Koch et al ,(2008)** ⁽²⁶⁾ who concluded that education about acne vulgaris confer significant and equivalent benefits in terms of short- and long-term knowledge gains among adolescent patients with acne.

As regards adolescents' attitude towards acne the present study revealed that there was highly statistically significant improvements in adolescent students' attitude post guidelines implementation and during follow up compared to lack positive attitude towards acne preprogram. The pre intervention poor acne attitude among the studied adolescents probably due to poor knowledge and false believes which lead to inefficient acne self-care practices among the blind adolescents and delayed treatment out comes. In addition, the disturbed body image associated with acne and the disappointment associated with delayed treatment outcomes are expected to be associated with the poor attitude among the blind adolescents regarding acne. The finding of the current study is in agreement with **Uslu et al.,(2018)** ⁽²⁰⁾, who informed that, despite the high prevalence of acne, there is still much deficiency of knowledge and wrong beliefs about acne ⁽¹⁸⁾. In addition, the

study done by **Hulmani et al, (2017)**⁽⁷⁾. Illustrated that, more than half of the study subjects had wrong belief and unfavorable attitude regarding acne.

Regarding the significant improvements of adolescents' attitude towards acne post guideline implementation and during follow up may be attributed to attending the educational sessions that contributed to the correction of the studied adolescents' knowledge, beliefs, and the promotion of their acne caring practices. The modified knowledge and promoted practices probably were helpful in promoting the adolescents' self-confidence and minimize the psychological impacts associated with acne particularly that appears in the face. These results indicated the importance of education for the adolescents with especial learning consideration for the children with especial needs to help them maintain healthy practices and promote their capacity to independent self-care practices regarding care of acne. In addition, results of the present study highlight the importance of health education for the adolescents to provide them with accurate sources for the health information and minimize the health impacts associated with their referring to untrusted sources for getting information. These findings are consistent with **Mosbeh, Faheim & Hassan, (2016)**⁽⁴⁾ who illustrated that, health education for adolescents is very

limited or they often receive information from sources that may be misleading or inaccurate. Also **Uslu et al., (2018)**⁽²⁰⁾ who indicates that, there is an urgent need for education about etiopathogenesis, potential complications and importance of effective treatment for acne. Effective treatment may make significant contributions for the mental health of adolescent. Additionally, **Abdulrahman et al, (2017)**⁽²⁸⁾ who found that education still important overall the treatment of the patients. Moreover, the result of the present study revealed that adolescent students' knowledge, practice and attitude were improved after program implementation. This could attribute to the fact that the importance and effectiveness of training course in enhancing students' knowledge, practice and attitude which play significant role in the quality of care providing and effective outcomes. Furthermore, high level of knowledge, competent practice and positive attitude increase self confidence and trust that enhance behavior and attitude toward care of acne.

Conclusion

The current study concluded that, the educational guidelines had positive effect on awareness of blind adolescent students regarding acne vulgaris.

Recommendation

-An orientation program should be prepared for such group of students regarding acne vulgaris.

-Increasing awareness of blind adolescent students about physical and physiological changes and needs of their adolescents.

-Improving knowledge and practice of those working with such group of students regarding medical, social, and legal aspects of youth and adolescent health needs.

-Further studies should be carried out on a larger number of such groups of students for evidence of the results and generalization .

-Availability of guidelines about acne vulgaris for blind girls in suitable manner as Brill booklets at their schools and libraries.

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