

# Effectiveness Of Aloe Vera Gel On Facial Acne And Scar Among Students At Girls Hostel Of Sri Siddhartha School And College Of Nursing Tumkur

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## ABSTRACT

**Introduction:** In the current era, there is widespread enthusiasm towards botanical agents and natural remedies for treating maladies. Acne is a common inflammatory disorder seen among adolescent age groups. Acne vulgaris is the main cause of pimples and affects over 80% of teenagers. Scarring can remain for life and act like a visible reminder of the disease. Aloe vera is one of the commonly used natural remedies for skin disorders since the gel-like components of the plant help to heal the skin from various minor ailments. Aloe vera can be used to lighten acne scars.

**Aim:** This study aims to evaluate the effect of aloe vera gel on facial acne and scars.

**Methods:** Using a quasi-experimental design, 57 students who satisfied the eligibility criteria. The intervention comprised the application of aloe vera gel on the face twice a day for 4 weeks continually under monitoring by the investigators. The pre-test scoring (prior to intervention) and post-test scoring (4 weeks after intervention) was done using modified investigators assessment scale.

**Results:** There is a significant difference in the mean pre and post-test scores. Data analysis showed that Aloe vera gel is effective in controlling facial acne and scarring.

**Conclusion:** Aloe vera can reduce the appearance of hyper-pigmented areas of the skin. Aloe vera can be widely used for skin problems, as side effects are minimal and is considered healthy for the skin.

**Keywords:** Aloe vera gel, scar, acne, hyperpigmentation, 4-week therapy

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## I. INTRODUCTION:

In the current era, there is increasing interest towards herbal remedies for treating various disorders. Reports from numerous ongoing research work to find better compounds in this regard. Acne vulgaris is a common skin disease that may interfere with the normal life of adolescents and young adults<sup>1</sup>. Acne lesions can result in post-inflammatory hyperpigmentation (PIH) and scarring.<sup>2</sup> Scarring may act as a visible reminder of acne. Acne scars are more common on the face than on the back and chest. Over the years, several risk factors have been linked with scar development<sup>3</sup>. Although many effective therapies are available, many are accompanied by serious complications and side effects which may cause patients to discontinue their medications<sup>4</sup>. *Aloe vera*, a perennial succulent xerophyte, has been used as a therapeutic agent in several cultures for many years<sup>5</sup>. More than 75 ingredients were identified from *Aloe vera* leaf extract<sup>6</sup>. Post-inflammatory hyperpigmentation occurs commonly breakouts. They appear tanned or, or pink, or red<sup>7</sup>. It shows up in the wake of pustules, pimples, and cystic breakouts. Aloesin is the active ingredient present in aloe plant that helps to lighten the skin. In one study, when aloe was applied to the skin four times per day for two weeks, it effectively faded post-acne hyperpigmentation. If the hyperpigmentation is severe, combining aloe vera or aloe-related skin care products—with a prescribed topical (like a retinoid or retinol alternative) may be helpful in reducing the hyperpigmentation.<sup>8</sup> In the context of such published reports, this research study was done to evaluate the effectiveness of aloe vera gel for facial acne and scar among the nursing student population.

**AIM:** To know the efficacy of aloe vera gel on facial acne and scars.

## II. METHODS

**Type of study:** A quasi-experimental design was used in this study.

**Sample size:** Initially, 57 nursing students were selected using purposive sampling, based on the eligibility criteria as follows:

**Inclusion criteria:**

1. Age between 18 – 22 years willing to participate in the study.
2. Female students having facial acne and scars.

**Exclusion criteria:**

1. Male students and the students who are taking treatments.

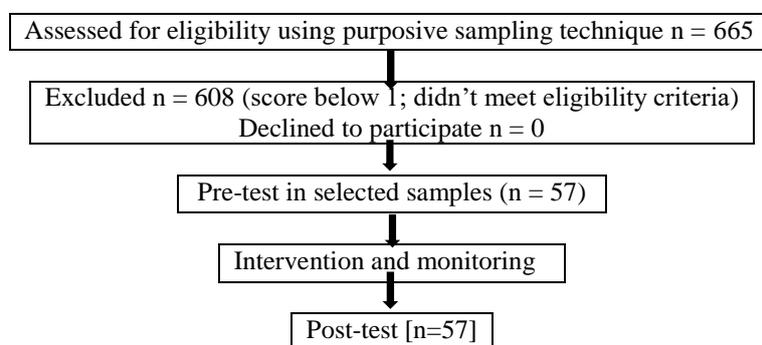
**Methodology:**

57 students were selected using modified investigators assessment scale from Sri Siddhartha School and College of Nursing, Tumkur. Pretest was conducted and the participants are categorized into different categories (Clear, Mild, Moderate, Severe) using modified investigators assessment scale. After the pretest, the investigator gave the pretest score to all participants. According to the modified investigator's assessment scale, each item in the scale has a different score range. For clear: Score ranges <10 with the Grade 0.

In mild acne, there are three Grades: Grade 1: Score of 10-15, Grade 2: Score of 26-50, and Grade 3: Score of 51-75.

Moderate: Grade 4 -Score 76-100, Grade 5- Score >100, Grade 6 is with 0 or 1 nodule or cyst in the face.

Severe: Grade 7: score 1 or 4 cyst or nodules on the face. The intervention started after the pretest. The participants were provided with aloe vera gel and instructed to apply on face twice a day for 4 weeks.



**Fig. 1 Flow diagram of a methodology**

### ETHICAL CONSIDERATIONS

Institutional review board approval (SSMC/MED/IEC-004/Jan-2023) was obtained from Sri Siddhartha Medical College ethics committee, Tumkur. Permission was obtained from the concerned authority to collect data. Informed consent was taken from all study participants.

### DATA ANALYSIS

P value was calculated based on the student's t-test- to compare pre and post-test mean scores.

## III. RESULTS

### DESCRIPTIVE CHARACTERISTICS

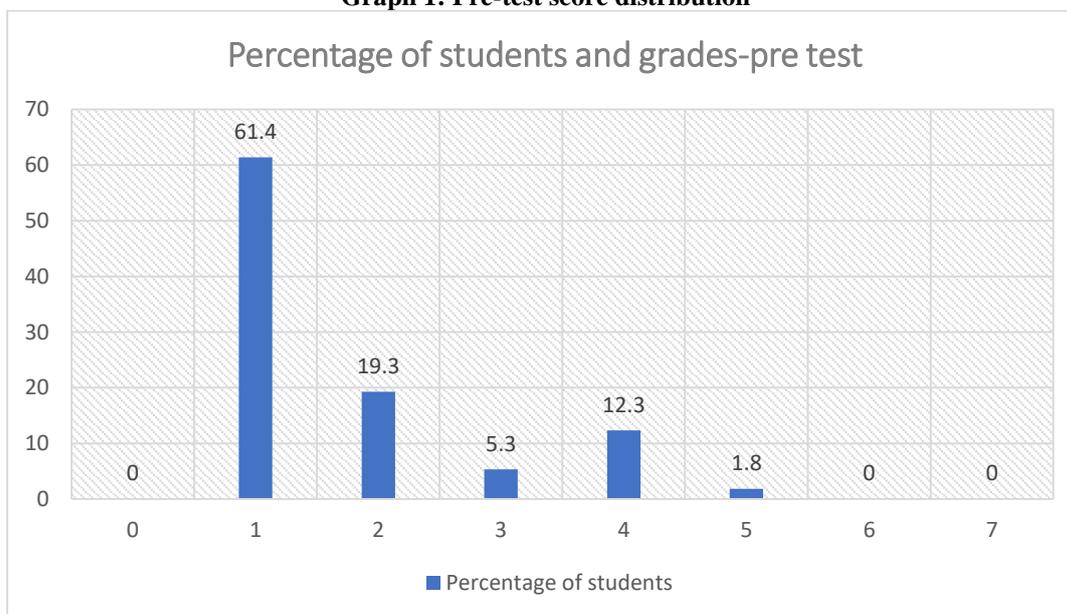
In pre-test scores, grade 1 was seen in 35 students, and grade 2 was seen in 11 students. Grade I was most seen followed by grade 2. Moderate acne includes papules and pustules which involve more than half of the face (grade 4), many comedones, papules or pustules (grade 5) and the presence of one nodule (grade 6). In the pre-test, Grade 4 was seen in 7 students. Severe acne (grade 7) includes papules, pustules and comedone which covers the entire face along with the presence of nodules or cysts. In the pre-test, grade 7 was not seen.

**Table 1: Pre-test score distribution**

Grade	Frequency	Percentage of students
0	0	0.0
1	35	61.4
2	11	19.3
3	3	5.3
4	7	12.3

5	1	1.8
6	0	0.0
7	0	0.0
Total	57	100.0

**Graph 1: Pre-test score distribution**



Amongst 57 female participants between the age group of 18 to 22 years, 52.6% scored grade 0 (clear) and 47.4% has a significant reduction in facial acne and scars.

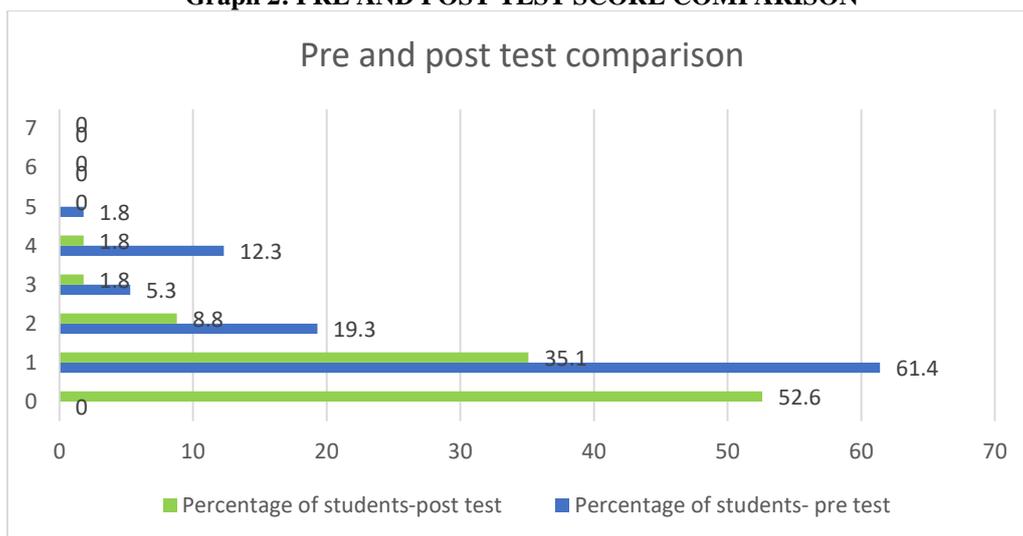
In the post-test, Grade 1 was seen in 20 students and grade 2 was seen in 5 students.

In the post-test grade 4 was seen in 1 student. grade 5 and grade 6 come were not seen.

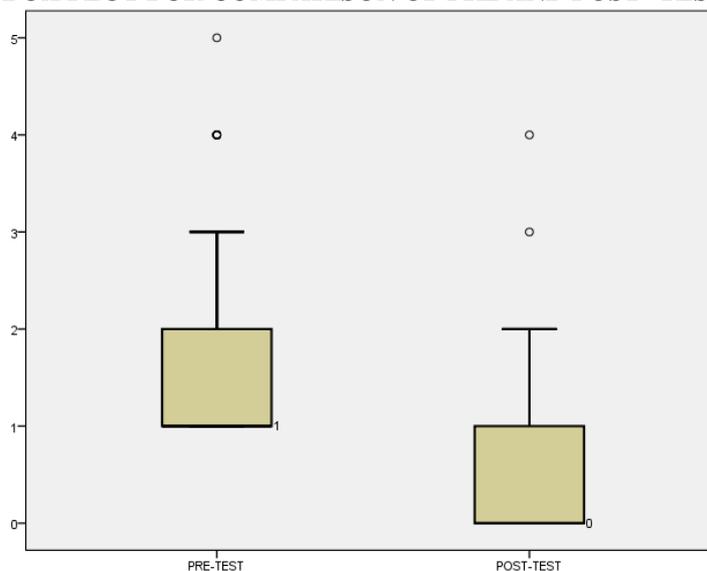
**Table 2 Post-test score distribution**

Grade	Percentage of students- pre-test	Percentage of students-post test
0	0.0	52.6
1	61.4	35.1
2	19.3	8.8
3	5.3	1.8
4	12.3	1.8
5	1.8	0.0
6	0.0	0.0
7	0.0	0.0
Total	100.0	100.0

**Graph 2: PRE AND POST TEST SCORE COMPARISON**



**Graph 3: BOX PLOT FOR COMPARISON OF PRE AND POST -TEST SCORES**



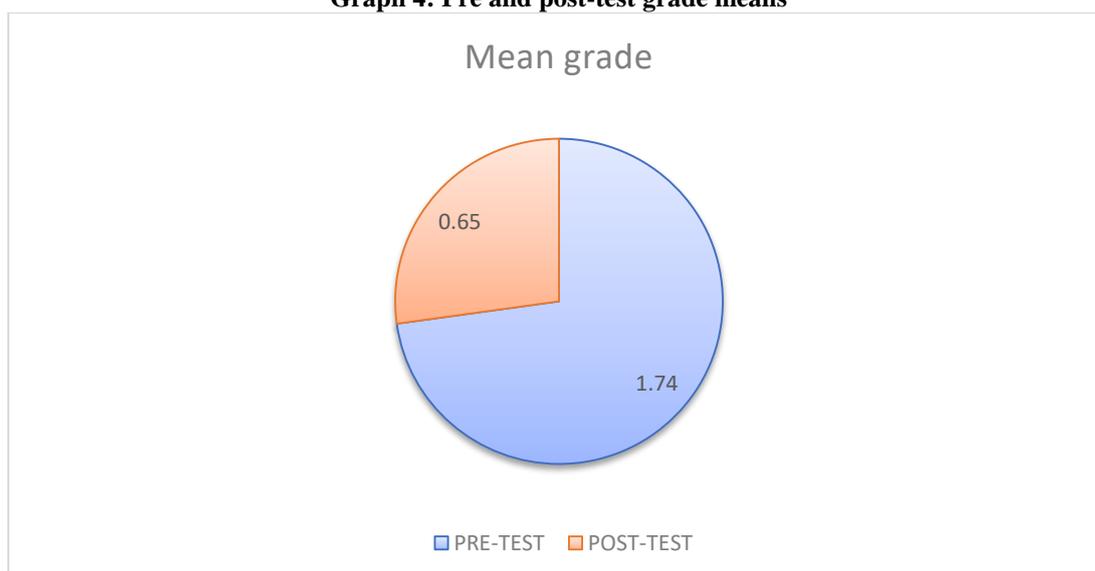
**Pre and post-test comparison:**

There is a significant difference in the mean pre and post-test grades.

**Table 3: Pre and post-test score comparison**

Grade	N	Mean SD	Median (IQR)	Z-value	P-value
PRE-TEST	57	1.74+1.13	1.0 (1.0-2.0)	-6.206	<0.001
POST-TEST	57	0.65+0.855	0.0 (0.0-1.0)		

Graph 4: Pre and post-test grade means



#### IV. DISCUSSION

A dermatologist can help to control acne, avoid scarring and make scars less visible. Medications for acne act by decreasing oil production and swelling or by treating bacterial infections. With most prescription acne drugs, individuals can see proper in 4 to 8 weeks. But it may take years for acne to clear up completely. The treatment regimen depends on the age, type and severity of the acne. Topical medications are combined often with oral medications for acne. Management options for pregnant women are very much limited due to the risk of teratogenic effects.<sup>9</sup> Aloe vera is a succulent plant native to Africa. Inside its plump leaves is a pulpy mucilaginous gel.<sup>10</sup> It is used in various skin care preparations, like moisturizers, cleansers, masks.<sup>11</sup> If acne treatments are leaving the skin dry and irritated, using aloe vera gel can be helpful.<sup>12</sup>

In the present study, although the aloe vera gel was effective in diminishing facial acne and scarring among students with mild-to-moderate acne vulgaris, this effect was statistically significant.

The results of a 2021 study showed that novel non-drug therapy significantly reduced acne. It also provided evidence and treatment guidelines for subjects suffering from mild to severe acne. This novel therapy can be an appropriate method for subjects who seek topical treatments with mild side effects with less resistance rates to antibiotics<sup>13</sup>.

Another study demonstrated the therapeutic effect of the combination of retinoid cream with aloe vera topical gel among 60 patients with mild to moderate acne. Results showed that this combination was more effective compared to the retinoid cream alone in decreasing acne lesions<sup>14</sup>.

In vitro study done by Lawrence, one ayurvedic preparation containing Aloe vera, showed excellent antibacterial activity against propionic acne, the main bacterium playing a vital role in pathogenesis of acne.<sup>15</sup>

#### V. CONCLUSION

Aloe vera is effective for facial acne and scarring when it is included in daily skincare routine. This is a natural remedy which is packed with essential nutrients and antibacterial. Aloe vera has been used for centuries as a part of beauty and this remedy is still being used by thousands of women across the globe. When compared to chemical beauty products this remedy is very less likely to cause side effects and skin damage.

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