

## Impact Of Rice Water And Sandalwood Mix On Facial Acne And Scar

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### ABSTRACT:

#### Background:

Acne is the most common skin disease which is estimated to affect 9.4% of the global population, making it the eighth most prevalent disease worldwide. Adolescents and young adults between ages 12 and 24 tend to be the most affected group. About 12% of men and 3 %of men may still have acne even in their 40s. Acne vulgaris is the most common chronic inflammatory disease and is characterized by papules, pustules, comedones and nodules, which place a heavy emotional and psychological burden on patients that may be far worse than the physical impact.

**Aim:** This study aims to look at the 'Potential Benefits of Rice water and Sandalwood for facial acne and scars.'

**Methods:** Using a quasi-experimental design, forty-two patients were selected randomly for intervention (n=42) who fulfilled inclusion and exclusion were recruited. The pretest scoring was done by using modified investigators assessment scale. After that, the patients were provided with Rice water and Sandalwood mixture and instructed to apply on the face, once a day for 4 weeks continuously and it was monitored by the investigators. After 4 weeks using modified investigators assessment scale post test was conducted.

**Results:** 47.6% of patients had a grade or score of 1 in the pre-test. 14.3% of patients had a score of 2, 21.4% of patients had a score of 3, 11.9% of patients had a score of 4, 2.4% of patients had a score of 5 and no patient had a grade of 6 during pre-test. 52.4% of patients had a grade or score of 0 in the post test. 14.3% of patients had a score of 2, 2.4% of patients had a score of 3, 2.4% of patients had a score of 4, no patient had a grade of 6 or 7 during post-test. Analysis revealed that Rice water and Sandalwood mix was effective for facial acne and scarring.

**Conclusion:** Rice water and sandalwood mix is cost-effective; it can reduce the appearance of hyper-pigmented areas of skin. Rice water and Sandalwood mix is unlikely to cause side effects and is considered healthy for the skin. It is not a time-consuming process.

**Keywords:** Rice water, sandalwood, Facial acne and scars, Skin diseases, Acne Vulgaris

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### I. INTRODUCTION

Skin diseases are a common problem among young adults and are a major health problem affecting a high proportion of the population in India.<sup>1</sup> Skin disease can place a heavy emotional and psychological burden on patients that may be far worse than the physical impact.<sup>2</sup> Many factors determine the pattern and prevalence of cutaneous diseases among the youth such as gender, race, personal hygiene, quality of skin care, environmental milieu and diet.<sup>3</sup> Acne Vulgaris is an extremely common skin condition with a lifetime prevalence of approximately 85% and occurs mostly during adolescents.<sup>4</sup> It can persist into adulthood with a 50.9% prevalence rate of acne in women ages 20 to 29 years versus 26.3% in women ages 40 to 49 years.<sup>5</sup> The Global Burden of Disease project has shown that skin diseases continue to be the fourth leading cause of nonfatal disease burden worldwide.<sup>6</sup> However very few studies have been carried out in India to find out the problems of skin diseases and that especially among the medical students. Increased consciousness especially among the youth of their body and beauty further aggravates the need to study of skin disease.<sup>7</sup> Now a variety of chemical and surgical interventions are available to treat and cure skin problems, but they are costly and have lots of side effects. Here is a study to look at the Potential Benefits of Rice water and Sandalwood for Skin Problems. Rice water consists of the starchy liquid leftover from soaking or boiling rice. Some existing research shows that rice water contains antioxidants such as inositol which helps in fighting the effects of free radicals, Ferulic acid, Gamma-oryzanol and Phytic acid which helps in skin lighting and has anti-aging properties.

With this background, this study has been carried out to find out the 'Potential Benefits of Rice water and Sandalwood for Skin Problems'.

**AIM:**

To know the impact of rice water and sandalwood mix for facial acne and scars.

**II. MATERIAL AND METHODS**

**Study site:** Sri Siddhartha School and College of Nursing, Tumkur.

**Study duration:** Four weeks

**Sample size:** 42

**Type of Study:** Quasi-experimental study

**Inclusion criteria:**

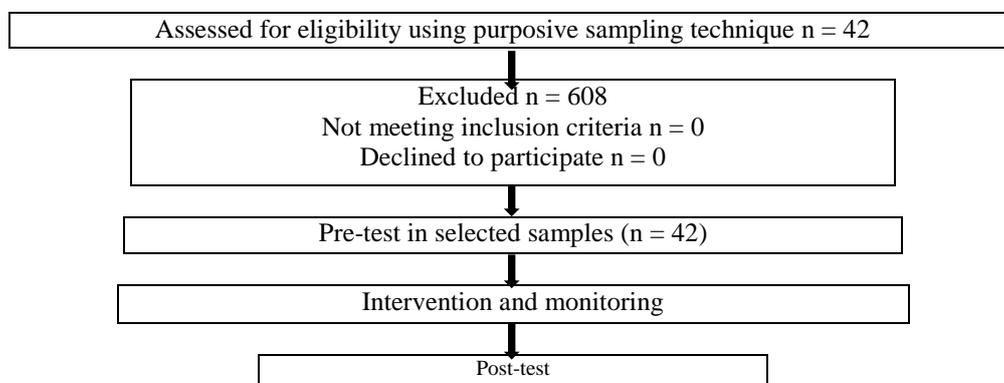
- Nursing students aged 18 to 22 years.
- Female participants having facial acne and scars.
- Students who provided informed consent.

**Exclusion criteria:**

Male students taking treatment for acne.

**Methodology:**

- Initially, nursing students were selected using a purposive sampling technique based on inclusion criteria.
- The sample selection was done by using modified investigators assessment scale.
- Pretest was conducted and the participants are categorized into different categories as per the severity of acne (Clear, Mild, Moderate, Severe) using modified investigators assessment scale.
- After the pretest, the investigator has given the pretest score for the participants.
- For clear the score is <10 with the Grade 0.
- In mild there are three Grades.
- Grade 1: score of 10-15, Grade 2: score ranges from 26-50, and Grade 3 score ranges from 51-75.
- In the moderate category also, there were three grades.
- Grade 4: Score ranges from 76-100,
- Grade 5 score >100,
- Grade 6 is with 0 or 1 nodule or cyst in face.
- Severe- grade 7 – Includes patients with 1 or 4 cysts or nodules on the face. The intervention started after pretest.
- All participants were given rice water and sandalwood mix and instructed to apply on face once a day for 4 weeks, especially in the evening.
- The post-test was assessed after 4 weeks.



**Fig. 1 Flow diagram of methodology**

**Ethical Considerations**

Institutional review board approval (SSMC/MED/IEC-003/Jan-2023) was obtained from the Sri Siddhartha Medical College ethics committee, Tumkur. Permission was obtained from the concerned authority to collect data. Informed consent was obtained from all the participants of the study. The participants were informed that their participation in the study was entirely voluntary, and they may withdraw from the study at any time.

**Data Analysis**

P value was calculated based on the mean test scores- compared using students t test. Frequencies and percentages were also used. The data analysis was carried out using EPI INFO software.

**III. RESULTS**

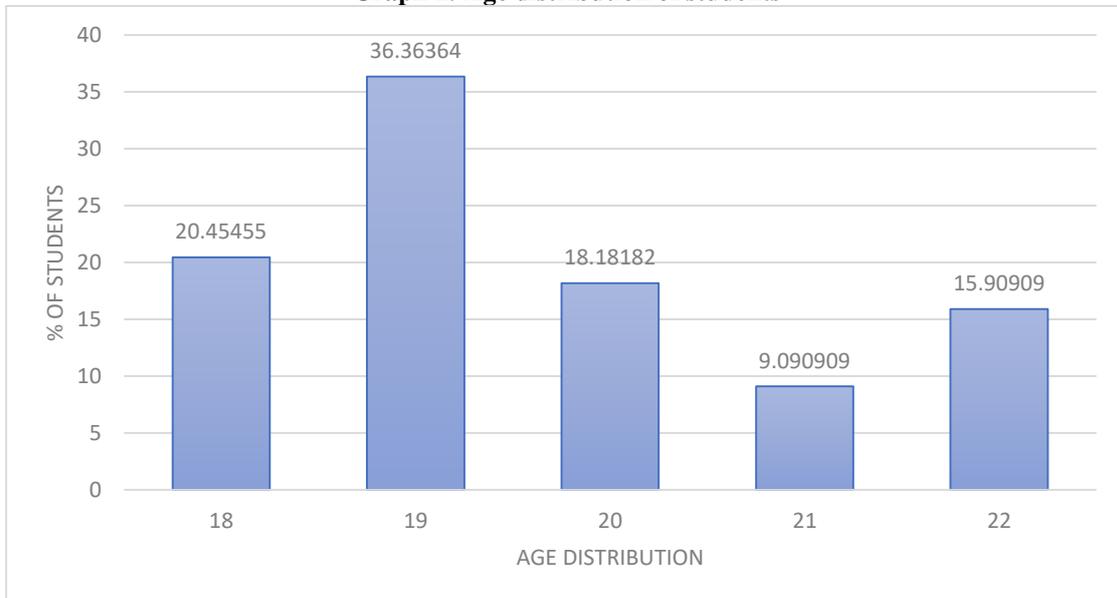
**Age distribution:**

20.4% of students were aged 18 years. 36.3% of students were aged 19 years, 9% were aged 21 years. The mean age was 15.9 years.

**Table 1: Age distribution of patients**

Age (in years)	Frequency	Percentage
18	9	20.45455
19	16	36.36364
20	8	18.18182
21	4	9.090909
22	7	15.90909
Total	44	100
Mean ± SD	19.4 ± 1.2 years	

**Graph 1: Age distribution of students**



**Pretest grades:**

47.6% of patients had a grade or score of 1 in the pre-test. 14.3% of patients had a score of 2, 21.4% of patients had a score of 3, 11.9% of patients had a score of 4, 2.4% of patients had a score of 5 and no patient had a grade of 6 during pre-test.

**Table 2: Pre test grades among students**

Grade	Frequency	Percent
0	0	0.0
1	20	47.6
2	6	14.3
3	9	21.4
4	5	11.9
5	1	2.4
6	0	0.0
7	1	2.4
Total	42	100.0

**Post-test score distribution:**

52.4% of patients had a grade or score of 0 in the post-test. 14.3% of patients had a score of 2, 2.4% of patients had a score of 3, 2.4% of patients had a score of 4, no patient had a grade of 6 or 7 during the post-test.

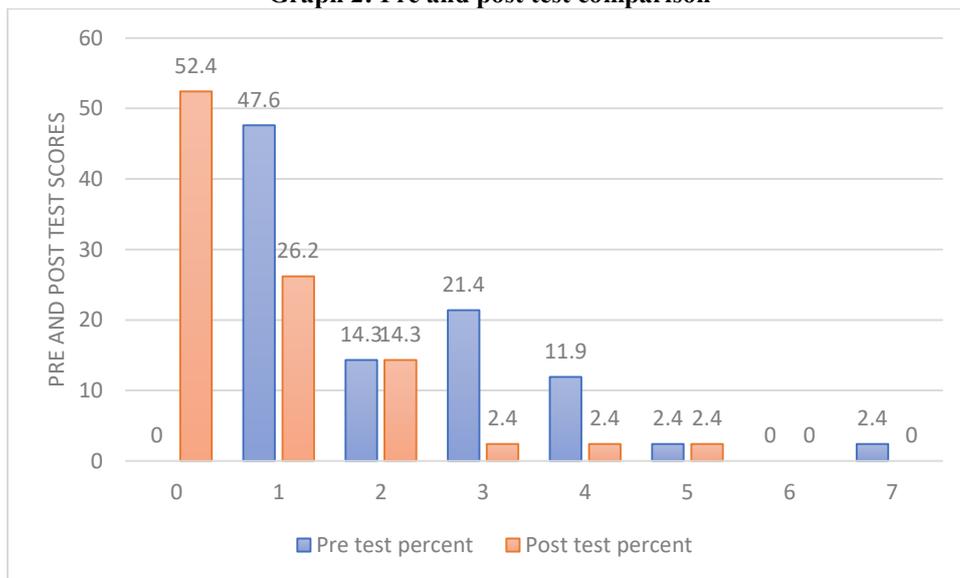
**Table 3: Post-test score distribution**

Grade	Frequency	Percent
0	22	52.4
1	11	26.2
2	6	14.3
3	1	2.4
4	1	2.4
5	1	2.4
6	0	0.0
7	0	0.0

**Pre and post-test comparison:**

The following graph shows pre and post-test comparison.

**Graph 2: Pre and post test comparison**



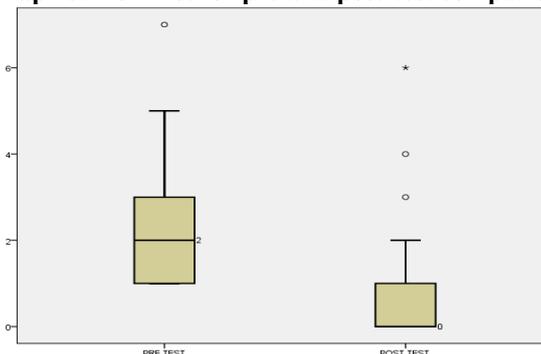
**Mean pre and post test scores:**

There is a significant difference in the mean pre and post test scores, as per students t test (p=0.001). There is a significant reduction in the score after the intervention with rice water and sandalwood for 4 weeks.

**Table 4: Pre and post-test comparison:**

Parameters	Mean and SD	P value
Pre-test	2.4±1.08	0.0001
Post-test	1.1±0.9	

**Graph 3: Box Plot for pre and post-test comparison**



## V. DISCUSSION

The prevalence of skin diseases has increased over the last few decades, and they contribute to a significant burden on healthcare systems across the world.<sup>8-11</sup> Skin disorders such as acne, psoriasis and eczema often have an early onset in childhood or adolescence, and negatively affect how patients perceive their body, an element that is closely related to how they perceive themselves and interact with others.<sup>12</sup>

Although mortality due to skin diseases is low, they contribute to significant disability, and the non-fatal burden of skin and subcutaneous diseases is more than that of cardiovascular diseases in India. In the Global Burden of disease study 2017, skin diseases ranked 10<sup>th</sup> whereas cardiovascular diseases ranked 12<sup>th</sup> according to age-standardized years lived with disability.<sup>13</sup> In general, skin diseases require long-term treatment and the treatment is costly.<sup>14</sup> Innovative approaches are required for the effective identification and management of skin diseases.<sup>15</sup> Although it can be expanded to research, evaluation and education as well.<sup>16</sup> Natural remedies are gaining popularity because, of several advantages such as often having fewer side-effects, better patient tolerance, being relatively less expensive and acceptable due to a long history of use.<sup>17</sup>

Ancient Ayurvedic texts and Traditional Chinese Medicine praise Sandalwood for its medical uses, and there's plenty of scientific evidence to support this.<sup>18</sup> Rice water is very effective against skin conditions like eczema and atopic dermatitis. A study observed the effects of rice water bathing in people with atopic eczema.

The prevalence of skin disorders was found to be 48.3%, more in girls. WHO reported a high prevalence (21-87%) of skin disorders in the general population of developing countries of the world after reviewing 18 prevalence studies.<sup>19</sup>

In the current study, 42 students were included. The result demonstrated that one month of rice water and sandalwood mixture application on the face is effective on acne and scar reduction. The present study was statistically significant.

According to a study in 2012, Sandalwood was tolerated well, and reduced lesion counts in 90% of acne patients. In this, 89.4% (42/47) met the primary end point determined by the GAIS (Global Aesthetic Improvement Scale) of improved (66%), much improved (19%), or very much improved (4%). Notable reductions in lesion counts were observed in patients with more severe or inflamed lesions. Tolerability was queried on all visits. No itching, scaling, or erythema was reported after the initial application. Symptoms of intolerance peaked in week 2; however, most events were mild to moderate and were typically reported with the use of the mask component. Intolerance decreased by week 4 and by week 8. The treatment regimen was well tolerated by patients.<sup>20</sup>

A comparative study evaluated the effects of a gel formulation containing rice water on human skin. The study involved 12 volunteers who used the formulation for 28 days. It was found that rice water was loaded with antioxidants that could inhibit the activity of elastase (an enzyme that damages elastin). Thus, it could help maintain the elasticity of the skin and slow down the signs of aging. A study found that rice starch could help improve and repair the natural barrier of the skin. This is especially beneficial for people who have atopic dermatitis. This function of rice water may also be beneficial for managing eczema, rashes, and inflammation.<sup>21</sup>

In a study the Biological and sensory effects of rice water were evaluated on a panel of 12 volunteers for 28 days. The safety evaluation study was performed on rice water gel, using Human Repeat Insult Patch test protocol. Rice water presented in vitro biological antioxidant activity and elastase inhibitory effect<sup>22</sup>.

## VI. CONCLUSION

Rice water and sandalwood mixture are effective for facial acne and scars. This is a natural remedy which is packed with essential nutrients and antioxidants. Rice water and Sandalwood have been used for centuries as a part of the beauty and also 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. The study is sponsored by RGUHS, Karnataka. There were no conflicts of interest.

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