

Effectiveness of a Nurse-Led Educational Programme on Knowledge and Practices Regarding Adverse Effects of Cosmetic Use Among Adolescent Girls: A Quasi-Experimental Study

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ABSTRACT

Background: Increasing cosmetic use among adolescents, combined with inadequate awareness of potential adverse effects, poses significant health risks. **Objective:** To evaluate the effectiveness of a nurse-led educational programme in improving knowledge and practices regarding adverse effects of cosmetic use among adolescent girls. **Methods:** A quantitative quasi-experimental one-group pre-test and post-test design was used among 80 adolescent girls (15–18 years) in a selected senior secondary school, Dehradun, Uttarakhand. Data were collected using a self-structured knowledge questionnaire and practice checklist. A structured nurse-led educational intervention was administered, followed by a post-test after two weeks. Data were analysed using descriptive and inferential statistics. **Results:** The mean knowledge score improved significantly from 10.18 ± 4.02 to 16.26 ± 3.87 ($t = 6.95$, $p < 0.001$). The mean practice score increased from 13.30 ± 6.11 to 24.50 ± 5.48 ($t = 9.95$, $p < 0.001$). **Conclusion:** The nurse-led educational programme was effective in enhancing knowledge and promoting safe cosmetic practices among adolescent girls.

KEYWORDS: Adolescents, cosmetic use, adverse effects, educational programme, knowledge, practice, nursing intervention.

INTRODUCTION

Cosmetics are widely used substances applied to the human body for cleansing, beautification, and enhancing appearance. Over time, cosmetic use has expanded beyond basic hygiene to include a wide range of aesthetic and skincare products. In recent years, the increasing influence of media, peer pressure, and beauty standards has led to a significant rise in cosmetic usage among adolescents.

Adolescence is a sensitive phase characterized by physical, emotional, and psychological changes. During this period, individuals develop self-identity and body image perceptions, often influenced by societal expectations. As a result, many adolescents begin using cosmetic products without adequate knowledge of their composition, safe usage, or potential adverse effects.

Although modern cosmetics are subject to regulatory standards, concerns remain regarding harmful ingredients such as parabens, phthalates, formaldehyde releasers, and heavy metals. Prolonged exposure to these substances may lead to skin irritation, allergies, hormonal disruption, and even long-term health risks. Despite these concerns, awareness among adolescents remains limited.

This gap highlights the need for structured educational interventions. Nurses, as key health educators, play a vital role in promoting awareness and preventive health behaviours. A nurse-led educational programme can provide adolescents with essential knowledge about safe cosmetic use, thereby reducing the risk of adverse effects.

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Background of the Study

The use of cosmetics dates back thousands of years and has evolved significantly across civilizations. Historically, cosmetics were used not only for beautification but also for cultural, social, and ritualistic purposes. However, earlier formulations often contained toxic substances such as lead and mercury, resulting in serious health complications.

In the modern era, the cosmetic industry has witnessed rapid growth, driven by technological advancements and changing consumer preferences. The availability of a wide variety of cosmetic products has made them easily accessible, particularly to young consumers.

In India, the cosmetic market is expanding rapidly, with adolescents forming a significant consumer group. This increase in usage is often not accompanied by adequate knowledge or safe practices. Studies indicate that many adolescents do not read product labels, check expiry dates, or understand ingredient composition.

Adverse effects of cosmetic use are commonly reported and include skin rashes, acne, allergic reactions, and eye irritation. In some cases, improper use and sharing of products can lead to infections and long-term skin damage.

Given these concerns, it is essential to educate adolescents about safe cosmetic practices. Educational interventions can help bridge the knowledge gap and promote healthier behaviours.

Need for the Study

The growing use of cosmetics among adolescents, combined with limited awareness of potential risks, underscores the importance of this study. Several factors contribute to the need for educational intervention:

- Increasing exposure to beauty trends and social media influence
- Lack of knowledge regarding cosmetic ingredients and adverse effects
- Unsafe practices such as sharing products and using expired cosmetics
- Absence of cosmetic safety education in school curricula
- Rising incidence of cosmetic-related health issues

Educational programmes are a cost-effective and preventive approach to addressing these issues. By equipping adolescents with knowledge and skills, such interventions can reduce the risk of adverse effects and promote safe practices.

Objectives of the Study: The study was conducted with the following objectives:

1. To assess the knowledge and practices regarding adverse effects of cosmetic use among adolescent girls
2. To compare pre-test and post-test levels of knowledge and practices
3. To evaluate the effectiveness of a nurse-led educational programme
4. To determine the association between demographic variables and post-test scores

Methodology

Research Design: A quasi-experimental one-group pre-test and post-test design was used to assess the effectiveness of the intervention.

Setting and Sample: The study was conducted in a selected senior secondary school in Dehradun, Uttarakhand. A total of 80 adolescent girls aged 15–18 years participated in the study. Participants were selected using a non-probability purposive sampling technique.

Data Collection Tools: Two tools were used for data collection:

- Self-structured knowledge questionnaire
- Practice checklist

Both tools were validated and tested for reliability prior to use.

Intervention: A structured nurse-led educational programme was conducted, focusing on:

- Types of cosmetic products
- Harmful ingredients
- Adverse effects
- Safe usage practices
- Personal hygiene and product handling

The session included lectures, discussions, and visual aids.

Data Collection Procedure: Pre-test conducted to assess baseline knowledge and practices

- Educational programme administered
- Post-test conducted after two weeks

Data Analysis

Data were analyzed using:

- Descriptive statistics (mean, standard deviation)
- Inferential statistics (paired t-test, chi-square test)

Results

The study findings demonstrated a significant improvement in both knowledge and practices following the educational intervention.

Knowledge Scores: The knowledge scores showed a significant improvement after the intervention. The mean pre-test score was 10.18 ± 4.02 , which increased to 16.26 ± 3.87 in the post-test. The mean difference was calculated as 6.08. The obtained t-value of 6.95 was statistically highly significant at $p < 0.001$, indicating that the intervention was effective in enhancing the knowledge level of the participants.

Practice Scores: The practice scores demonstrated a marked improvement following the intervention. The mean pre-test score was 13.30 ± 6.11 , which increased to 24.50 ± 5.48 in the post-test. The calculated mean difference was 11.20. The obtained t-

value of 9.95 was found to be statistically highly significant at $p < 0.001$. These findings indicate that the intervention was effective in significantly improving the practice levels of the participants.

These results indicate a statistically significant improvement in both knowledge and practice levels after the intervention.

Association with Demographic Variables: Significant associations were found between selected demographic variables and post-test scores, suggesting that factors such as age, education level, and exposure to information may influence outcomes.

Figure 1: Graph showing comparison of pre-test and post-test Practice Scores on the adverse effects of cosmetic use

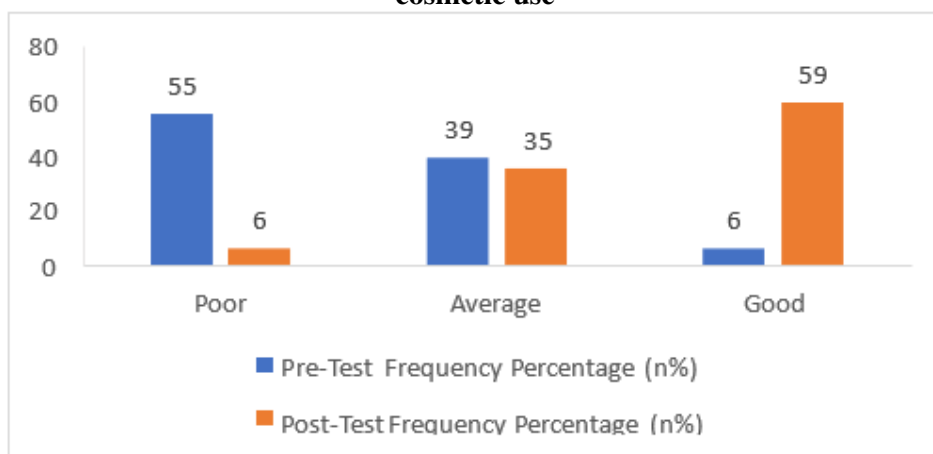


Table 1: Comparison of pre-test and post-test Levels of Knowledge on the adverse effects of cosmetic use

S. no.	Knowledge Level	Pre-Test		Post-Test	
		Frequency (n)	Frequency Percentage (n%)	Frequency (n)	Frequency Percentage (n%)
1	Poor	40	50	8	10
2	Average	33	41	26	33
3	Good	7	9	46	58

Table 2: Description of the Senior Secondary School students according to selected demographic characteristics (N = 80)

S. No.	Socio-Demographic Variables	Category	Frequency (f)	Percentage (%)
1	Age (years)	15	18	23
		16	21	26
		17	23	29
		18	18	23
2	Class	9 th	19	24
		10 th	21	26
		11 th	20	25
		12 th	20	25
3	Religion	Hindu	56	70
		Muslim	14	18
		Christian	3	4
		Others	7	9

4	Parents' Occupation	Unemployed	14	18
		Self-employed	22	28
		Private job	26	33
		Government job	18	23
5	Monthly Family Income	< ₹10,000	16	20
		₹10,000– ₹30,000	28	35
		₹30,000– ₹50,000	22	28
		> ₹50,000	14	18
6	Frequency of Cosmetic Use	Daily	30	38
		Weekly	24	30
		Occasionally	18	23
		Rarely	8	10
7	Cosmetic Type Usage	Hair cosmetics	14	18
		Skin Cosmetics	29	36
		Eye Cosmetics	12	15
		All of these	25	31
8	Starting Age of Using Cosmetics	Before 12 years	4	5
		13-14 years	7	9
		15-16 years	23	29
		17-18 years	46	58
9	Source of Information	Print Media	5	6
		Social Media	35	44
		Peers	22	28
		Family	18	22
10	Adverse Effect	Yes	4	5
		No	76	95

Discussion

The findings of this study highlight the effectiveness of nurse-led educational interventions in improving awareness and practices related to cosmetic use among adolescents.

Before the intervention, participants demonstrated limited knowledge and unsafe practices. This aligns with previous studies indicating that adolescents often lack awareness regarding cosmetic safety.

Following the educational programme, there was a marked improvement in both knowledge and practices. Participants showed better understanding of harmful ingredients, importance of reading labels, and safe usage techniques.

The improvement in practice scores suggests that knowledge gained through education can translate into behavioural changes. This is consistent with health behaviour theories such as the Health Belief Model, which emphasizes the role of awareness in influencing health-related behaviours.

The study also emphasizes the role of nurses as educators. Nurse-led interventions are effective because they provide reliable, evidence-based information in a structured manner.

Implications for Nursing Practice

The study has several important implications:

- Nurses can play a key role in school health education programmes
- Cosmetic safety education should be integrated into adolescent health initiatives
- Educational interventions can prevent cosmetic-related health issues
- Community health nurses can extend awareness programmes to larger populations

Limitations

- The study was limited to one school and a small sample size
- Only female adolescents were included
- Long-term retention of knowledge and practices was not assessed
- The study did not evaluate attitudes

Recommendations

- Conduct similar studies with larger and diverse populations
- Include long-term follow-up to assess sustainability of outcomes
- Integrate cosmetic safety education into school curricula

- Develop awareness campaigns targeting adolescents and parents

Conclusion

The study concludes that a nurse-led educational programme is highly effective in improving knowledge and practices regarding the adverse effects of cosmetic use among adolescent girls. The significant increase in post-test scores demonstrates the impact of structured health education in promoting safe behaviours.

Given the increasing use of cosmetics among adolescents, it is essential to implement educational interventions at the school level. Such initiatives can contribute to the prevention of cosmetic-related health problems and support overall adolescent well-being.

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