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A NURSE-LED WEB-BASED HOME ASTHMA EDUCATION PROGRAM FOR CHILDREN AND THEIR FAMILIES IN SELECTED RURAL AREAS OF DEWAS, MADHYA PRADESH

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Introduction

Bronchial asthma is a chronic inflammatory disorder of the airways characterized by recurrent episodes of wheezing, breathlessness, chest tightness, and coughing. The condition often begins during childhood and can significantly affect physical activity, school attendance, and overall quality of life. Asthma remains a major public health concern globally due to its increasing prevalence and the burden it places on healthcare systems.

According to the World Health Organization, more than 262 million people worldwide suffer from asthma, and the disease contributes to a significant number of hospitalizations and healthcare visits each year. Among these, children represent a substantial proportion of affected individuals.

In India, the prevalence of asthma among children ranges from 10% to 15%, particularly in urban and semi-urban populations. However, rural communities often face additional challenges such as limited access to healthcare facilities, lack of awareness about disease management, and poor adherence to prescribed treatments.

In the state of Madhya Pradesh, respiratory illnesses including asthma are commonly reported among children due to environmental factors, indoor air pollution, biomass fuel exposure, and seasonal allergens. Rural districts such as Dewas experience a higher burden of respiratory diseases because of limited health education and healthcare infrastructure.*

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Effective asthma management requires a combination of pharmacological treatment, avoidance of triggers, regular monitoring of symptoms, and patient education. Education of children and their caregivers is essential for ensuring proper medication adherence, correct inhaler technique, and early recognition of exacerbations.

Nurses play a critical role in health education and chronic disease management. Nurse-led educational interventions have been shown to improve knowledge, self-care practices, and disease outcomes in various chronic conditions. With the advancement of digital technology and internet accessibility, web-based educational programs have become an innovative approach to delivering health information.

Web-based asthma education programs provide interactive learning opportunities for children and their families. These programs can include instructional videos, educational modules, reminders for medication use, and guidance on trigger avoidance. Such digital interventions are particularly beneficial in rural settings where access to healthcare professionals may be limited.

The integration of digital health education into community nursing practice has the potential to improve disease management and reduce hospital admissions among children with asthma. Therefore, this study aimed to evaluate the effectiveness of a nurse-led web-based home asthma education program among children and their families in rural areas of Dewas district.

Materials and Methods

Study Design

A quasi-experimental pre-test and post-test design was used.

Study Setting

The study was conducted in selected rural communities of Dewas district, Madhya Pradesh.

Sample Size

A total of 120 children diagnosed with bronchial asthma and their families participated in the study.

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Sampling Technique

Participants were selected using purposive sampling technique.

Inclusion Criteria

- Children aged 6–14 years diagnosed with bronchial asthma

- Families residing in rural areas of Dewas

- Access to a smartphone or internet-enabled device

- Parents willing to participate in the educational program

Exclusion Criteria

- Children with severe respiratory complications requiring hospitalization

- Families without internet access

Intervention

The nurse-led web-based asthma education program included the following components:

1. Online educational sessions about asthma causes and symptoms

2. Demonstration videos for correct inhaler technique

3. Guidance on medication adherence

4. Information about trigger avoidance and environmental control

5. Asthma management plans for families

6. Weekly follow-up through mobile communication

The intervention was conducted over four weeks.

Data Collection Tools

1. Structured demographic questionnaire

2. Asthma knowledge assessment questionnaire

3. Treatment adherence checklist

4. Pediatric asthma quality of life scale

Statistical Analysis

Data were analyzed using descriptive and inferential statistics.

- Mean and standard deviation were calculated.

- Paired t-test was used to compare pre-test and post-test scores.

- Significance level was set at $p < 0.05$.

Results

Demographic Characteristics

Variable	Frequency	Percentage
Age 6–9 years	50	41.7%
Age 10–14 years	70	58.3%
Male	68	56.7%
Female	52	43.3%

Knowledge Scores

Test	Mean Score
Pre-test	11.8
Post-test	19.6

Treatment Adherence

Test	Mean Score
Pre-test	**10.4**
Post-test	**17.3**

Quality of Life Scores

Test	Mean Score
Pre-test	**48.7**
Post-test	**69.5**

Discussion

The findings of the present study demonstrated that a nurse-led web-based educational intervention significantly improved asthma management knowledge among children and their families. The improvement in treatment adherence suggests that structured digital education can help families better understand the importance of regular medication and proper inhaler use.

The increase in quality-of-life scores among children indicates that effective disease management reduces symptoms and enhances daily functioning. The involvement of nurses in providing online education and follow-up support played a crucial role in reinforcing positive health behaviors.

Web-based health education programs are particularly beneficial in rural areas where healthcare resources are limited. Digital platforms allow healthcare professionals to reach a larger population and provide continuous guidance without requiring frequent hospital visits.

Conclusion

The study concluded that the nurse-led web-based home asthma education program was effective in improving knowledge, treatment adherence, and quality of life among children with asthma and their families in rural areas of Dewas district.

The integration of digital health education into community nursing practice can significantly improve chronic disease management and reduce complications associated with pediatric asthma.

Limitations

1. The study was limited to rural areas of Dewas district.
2. The intervention period was relatively short.
3. Long-term follow-up was not conducted.

Recommendations

1. Similar programs should be implemented in other rural districts.
2. Long-term studies should be conducted to evaluate sustained benefits.
3. Digital health education should be integrated into community nursing services.

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