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Original Article

A Comparative Study on Knowledge of Waterborne Diseases Among Early Adolescents in Urban and Rural Schools of Durg District, Chhattisgarh

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Abstract

Introduction: Waterborne diseases are a major public health concern, especially in developing countries like India. Early adolescents are particularly vulnerable due to lack of awareness and preventive practices. This study was undertaken to assess and compare the knowledge regarding waterborne diseases among early adolescents aged 11–14 years in selected urban (Nehru Nagar) and rural (Andagaon) areas of Durg District, Chhattisgarh.

Materials and Methods: A descriptive comparative research design was adopted for the study. A total of 80 students were selected using purposive sampling, including 40 from urban and 40 from rural schools. Data were collected using a structured knowledge questionnaire to assess knowledge related to waterborne diseases.

Results: The study revealed that urban adolescents had significantly higher knowledge scores (mean = 6.2, SD = 0.6) compared to rural adolescents (mean = 4.2, SD = 1.3). The difference was statistically significant with a t-value of 21.99 ($p < 0.005$). Further analysis showed that knowledge levels were significantly associated with several socio-demographic variables.

Conclusion: The findings of the study highlight that urban adolescents possess better knowledge about waterborne diseases than their rural counterparts. This underscores the urgent need for targeted health education interventions in rural areas to enhance awareness and promote preventive practices against waterborne diseases.

Keywords: Comparative Study; Knowledge; Waterborne Diseases

Introduction

Waterborne diseases continue to be a major public health concern in India, particularly in semi-urban and rural areas where access to clean drinking water, sanitation, and health education is often limited. India faces a huge burden of waterborne illnesses such as cholera, typhoid, dysentery, and hepatitis A and E, which are mostly spread through contaminated water sources. According to the Ministry of Health and Family Welfare, millions of cases of waterborne diseases are reported annually, with children and adolescents among the most vulnerable groups.

Chhattisgarh, a state in central India, is known for its industrial belt, natural resources, and tribal population. Despite its rapid urbanization, areas like Durg and its major city Bhilai face challenges related to public health infrastructure and water quality management. Bhilai, being an industrial hub, has a mixed population with varied socio-economic backgrounds. While urban areas benefit from piped water and better sanitation, rural and peri-urban areas continue to rely on hand pumps, wells, and untreated sources. This contributes significantly to the prevalence of waterborne illnesses.

The adolescent population, particularly those aged 10–14 years (early adolescence), is at a crucial stage of growth and cognitive development. At this age,

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they begin to form long-term health habits and behavioral patterns. However, many adolescents in both urban and rural India lack adequate knowledge about basic hygiene practices, disease prevention, and the importance of safe drinking water. In Chhattisgarh, especially in the Durg district, disparities in knowledge levels among urban and rural schoolchildren have been observed due to differences in educational exposure, infrastructure, and community practices.

It is important to recognize that schools play a vital role in shaping students' knowledge and behaviors. Health education in schools—when appropriately delivered—can help bridge the gap in knowledge and encourage lifelong healthy habits. A comparative study examining awareness of waterborne diseases among adolescents from different settings (urban Bhilai versus rural areas of Durg) offers valuable insights into these disparities. Such studies are essential to identify gaps, evaluate the effectiveness of existing programs, and design targeted interventions.

This research aims to assess and compare the knowledge levels related to waterborne disease among early adolescents in selected schools of urban Bhilai and rural Durg. It also seeks to explore how factors such as socio-economic status, school curriculum, availability of clean water, and parental education influence adolescent knowledge. The outcomes of this study are expected to support the formulation of school-based health promotion strategies and guide public health efforts at both state and district levels. Ultimately, this can help reduce the incidence of preventable diseases and enhance the overall well-being of children in Chhattisgarh.

Objectives

1. To assess knowledge of waterborne diseases among early adolescents in urban and rural schools.
2. To compare knowledge levels between urban and rural adolescents.
3. To find associations between knowledge levels and selected socio-demographic variables.

Hypothesis

H1: Urban school children will have significantly higher knowledge than rural school children regarding waterborne diseases.

Operational Definitions

Knowledge: Correct responses to a structured questionnaire. Waterborne diseases: Illnesses such as diarrhea, dysentery, and typhoid caused by consuming contaminated water. Early adolescents: Children aged 11–14 years.

Materials and Methods

A quantitative, descriptive comparative research design was used. The study was conducted in selected schools of urban (Nehru Nagar) and rural (Andagaon) areas in Durg, Chhattisgarh. Eighty students (40 from each area) were chosen through purposive sampling. A validated structured questionnaire was administered. The tool's reliability was confirmed ($r = 0.72$). Ethical approvals and consent were obtained.

Results

Descriptive and inferential statistics were used. Urban students had a mean knowledge score of 6.2 ($SD = 0.6$), while rural students scored 4.2 ($SD = 1.3$). The t-test value was 21.99, showing a statistically significant difference ($p < 0.005$). Chi-square analysis showed significant associations between knowledge and variables like parental education and occupation.

Discussion

The study revealed higher awareness of waterborne diseases among urban adolescents, possibly due to better education, sanitation, and media access. These results align with previous studies indicating gaps in rural health literacy. Addressing these disparities requires educational interventions and improved infrastructure.

Conclusions

The findings emphasize a significant urban-rural disparity in knowledge about waterborne diseases among adolescents. Effective awareness programs, especially in rural schools, are essential to improve health literacy and reduce the burden of preventable diseases.

Recommendations

- Implement structured health education in rural schools.
- Conduct periodic awareness campaigns. Encourage parental involvement in hygiene education.
- Provide accessible and clean drinking water in all schools.

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Conflicts of interests: There is no conflict of interest

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