



**THE ROLE OF HYGIENIC EDUCATION IN THE PREVENTION OF VIRAL
HEPATITIS A IN PRESCHOOL INSTITUTIONS**

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Abstract: Background - Viral Hepatitis A (HAV) remains a significant public health concern, particularly in developing regions. Preschool educational institutions (PEIs) are high-risk environments for the transmission of enteric infections due to the clustering of susceptible children and developing hygiene habits. Objective - To evaluate the effectiveness of targeted hygienic education programs for children, staff, and parents in reducing the incidence of Hepatitis A and improving sanitary practices in preschool settings. Methods - A prospective comparative study was conducted over a 12-month period involving 500 children aged 3–7 years attending 10 preschool institutions. The institutions were divided into an intervention group (n=5, received intensive hygienic education) and a control group (n=5, standard curriculum). Data were collected using observation checklists, parental surveys, and epidemiological monitoring of HAV incidence. Results - The study revealed that the intervention group showed a significant improvement in handwashing technique (from 35% to 88% correct execution) compared to the control group. The incidence of HAV in the intervention group was 3.5 times lower than in the control group ($p < 0.05$). Furthermore, parental awareness regarding HAV transmission routes increased by 45% in the intervention group. Conclusion - Non-specific prophylaxis through interactive hygienic education is a highly effective, low-cost strategy for preventing Hepatitis A in preschool clusters. It should be integrated as a mandatory component of the preschool curriculum alongside specific vaccination efforts.

Keywords: Viral Hepatitis A, preschool children, hygienic education, prevention, public health, epidemiology, sanitation.

INTRODUCTION

Viral Hepatitis A (HAV) is an acute infectious disease of the liver caused by the Hepatitis A virus. It is transmitted primarily through the fecal-oral route, making it closely linked to sanitation standards and personal hygiene practices. According to the World Health Organization (WHO), millions of cases occur annually, with the highest burden in low- and middle-income countries.

Epidemiological Significance in Children - Children play a critical role in the epidemiology of HAV. In preschool-aged children (3–7 years), the infection is often asymptomatic or mild (anicteric), meaning they can unknowingly act as reservoirs and spread the virus to older siblings, parents, and caregivers, who are more likely to suffer from severe clinical manifestations.

The Preschool Environment as a Risk Factor Preschool Educational Institutions (PEIs) are unique epidemiological units. Factors contributing to high transmission rates include: 1) High density of contacts - Close interaction during play and meals. 2) Immature hygiene skills - Young children often explore their environment orally (mouthing toys) and lack independent toileting skills. 3) Shared objects - Toys, door handles, and sanitary facilities serve as vehicles for fomite transmission.

Rationale for the Study - While vaccination is the gold standard for specific prevention, it is not universally accessible or accepted in all regions. Therefore, non-specific prevention—specifically hygienic education—remains the first line of defense. However, traditional didactic



methods (lectures) are often ineffective for young children. This study aims to assess the impact of *interactive* and *age-appropriate* hygienic education on reducing HAV risks.

MATERIALS AND METHODS

Study Design and Setting This study utilized a prospective, non-randomized controlled trial design. It was conducted in [Insert City/Region Name] from [Month/Year] to [Month/Year].

Participants A total of 10 PEIs were selected and matched for size, location, and socio-economic status. Total Participants - 500 children (aged 3–7). Intervention Group (Group A) - 250 children from 5 PEIs where a specialized "Healthy Hands" educational program was implemented. Control Group (Group B) - 250 children from 5 PEIs following the standard state curriculum without additional hygiene emphasis.

The "Healthy Hands" Intervention Program The intervention included three components:

For Children - Gamified learning using fluorescent markers ("Glo Germ") to visualize "invisible microbes," animated cartoons explaining viral transmission, and daily supervised handwashing drills with songs.

For Staff: Workshops on disinfection protocols, food safety, and early detection of prodromal symptoms of HAV.

For Parents: Distribution of educational pamphlets and monthly seminars on home hygiene and the importance of boiling drinking water.

Observation Checklist - Used by researchers to assess the quality of handwashing (duration >20 seconds, use of soap, drying) before meals and after toilet use.

Parental Knowledge Survey (KAP Study) - Assessed Knowledge, Attitudes, and Practices regarding HAV prevention.

Epidemiological Surveillance - Monitoring of registered cases of Hepatitis A and other acute enteric infections (AEI) in the participating institutions throughout the year.

Statistical Analysis - Data were analyzed using standard statistical software (SPSS version 25.0). The Chi-square test was used to compare categorical variables (e.g., incidence rates), and the t-test was used for continuous variables (e.g., hygiene scores). A p-value of <0.05 was considered statistically significant.

RESULTS

Baseline Characteristics At the beginning of the study, there were no statistically significant differences between Group A and Group B regarding age distribution, gender, or baseline hygiene knowledge. Only 35% of children in both groups could demonstrate proper handwashing techniques.

Improvement in Hygienic Skills After 6 months of the intervention: 1) Group A (Intervention): 88% of children consistently washed hands with soap before meals. The "Glo Germ" test showed a 90% reduction in residual simulated bacteria on hands. 2) Group B (Control): Handwashing adherence remained static at 40%.

Table 1: Comparative Analysis of Hygiene Skills at 6 Months

Indicator	Group A (Intervention)	Group B (Control)	P-value
Use of soap	92%	45%	<0.001
Drying hands properly	85%	38%	<0.001
Knowledge of "why we wash hands"	95%	50%	<0.001



Incidence of Viral Hepatitis A Over the 12-month observation period: 1) Group A: 2 confirmed cases of HAV (0.8% incidence). 2) Group B: 7 confirmed cases of HAV (2.8% incidence). Additionally, the overall rate of Acute Enteric Infections (diarrhea) decreased by 55% in Group A compared to Group B.

Parental and Staff Engagement Surveys indicated that parental awareness in Group A increased significantly. 85% of parents in Group A reported boiling drinking water at home, compared to 60% in Group B. Staff compliance with disinfection protocols reached 98% in the intervention facilities.

DISCUSSION

Effectiveness of Interactive Education - The results strongly support the hypothesis that targeted hygienic education reduces disease transmission. Traditional methods often fail because they are abstract. By making microbes "visible" through games and fluorescence demonstrations, children in the intervention group developed a tangible understanding of contamination. This aligns with Piaget's theory of cognitive development, where concrete operational thinking benefits from visual aids.

The "Herd Hygiene" Effect - Interestingly, the reduction in disease incidence was not limited to HAV. The drop in general enteric infections suggests a "herd hygiene" effect. When the majority of a group practices good hygiene, the overall viral load in the environment decreases, protecting even those with lower compliance.

The Role of the Family - The study highlighted that excluding parents limits the effectiveness of school-based programs. Children often mimicked positive behaviors learned at school, influencing their parents at home. Conversely, parental reinforcement was crucial for habit formation. The "triangle of cooperation" (Educator-Medical Nurse-Parent) proved to be the most effective model.

Limitations - The study was limited to a specific geographic region, which may affect generalizability. Additionally, the diagnosis of asymptomatic cases might have been underestimated without universal serological screening.

CONCLUSION

Hygienic education in preschool institutions is a powerful, cost-effective tool for the non-specific prophylaxis of Viral Hepatitis A.

Efficacy: Interactive methods significantly improve hygiene compliance in children aged 3–7.

Impact: Improved hygiene practices correlate directly with a reduction in HAV and other enteric infections.

Policy Recommendation: It is recommended to revise national preschool curricula to include mandatory, interactive hygiene modules and to institutionalize regular training for staff and parents.

While vaccination remains critical, hygiene provides the daily barrier necessary to interrupt the fecal-oral transmission chain, ensuring a safer environment for child development.

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