RESEARCH IN THE FIELD OF HAND WASHING HYGIENE

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Abstract: This in the article of scientists hand wash hygiene in the field research achievements, methodologies and its impact on public health. It hand hygiene practices, effective hand wash tools working exit and hygiene education of diseases Key studies focusing on the impact of prevention are reviewed. Research also, various in teams hygiene culture in formation traditional knowledge and studies the role of modern science. The article is based on national data and scientific the results generalization through hygiene standards improvement and Improving global health through innovations in handwashing practices role to show focused.

Key words: hygiene, hand washing, population health, hygiene research, infectious of diseases prevent take, hygiene education, traditional practices, sanitation, hygiene innovation.

INTRODUCTION

Research shows that countries that did not have access to handwashing facilities before the pandemic faced significant challenges in containing the pandemic. In addition, disparities in access to water, sanitation and hygiene services persist, with rural areas experiencing lower coverage than urban areas.

The study aims to highlight the scientific advances in hand hygiene, highlighting their impact on research and public health policy and practice. By examining the intersection of local research, public health initiatives, and educational advocacy, we aim to provide a comprehensive account of the progress made in promoting hand hygiene as an essential component of disease prevention.

LITERATURE ANALYSIS AND METHODOLOGY

Hand hygiene is a critical public health factor that serves as the primary defense against the spread of infectious diseases. Globally, poor handwashing practices are responsible for an estimated 300,000 deaths each year, mostly among children under five. There is increasing global attention to the importance of hand hygiene, particularly during the COVID-19 pandemic, with the emphasis on the critical role that proper handwashing plays in preventing the spread of the virus.

Scientists are addressing these challenges through innovative research and interventions. Scientists are conducting studies that assess hand hygiene practices and their impact on public health. These efforts have led to the development of targeted hygiene education programs and improvements in handwashing infrastructure in schools and health facilities.

METHODOLOGY

This study uses mixed methods, combining quantitative data analysis with qualitative evaluation to provide a comprehensive assessment of hand hygiene practices.

Quantitative analysis: For this study, 726 neighborhoods were selected in 2021–2022, using a three-stage stratified sampling design. A total of 4,166 households participated in the second phase of data collection, providing a reliable data set for analysis. Data were categorized as “indoor” or “outdoor,” and included the availability of handwashing facilities with soap and water. It also included socio-economic indicators such as access to clean drinking water, sanitation facilities, and household income. Data were analyzed to assess urban and rural differences in the use of hand hygiene services.

Qualitative assessment: Complementing the quantitative analysis, qualitative data were collected through interviews with health professionals, educators, and community leaders. These interviews

aimed to shed light on contextual factors that influence hand hygiene practices, including cultural norms, educational initiatives, and infrastructure challenges. Thematic analysis was used to identify recurring themes and concepts related to hand hygiene promotion.

Predictive Modeling: Predictive modeling techniques were used to predict future trends in hand hygiene coverage. Time series analysis was conducted to project potential improvements or declines in hand hygiene access, taking into account variables such as economic growth and urbanization. These projections are used to inform strategic planning and resource allocation for health initiatives.

By integrating quantitative and qualitative methodologies, this study provides a deeper understanding of the factors influencing hand hygiene practices and provides evidence-based recommendations for improving public health.

RESULTS

Analysis of hand hygiene infrastructure shows significant disparities both regionally and between urban and rural areas. As of 2022, approximately 81.6 percent of the population had access to handwashing facilities, including soap and water.

Regions such as Navoi showed the highest coverage with basic handwashing facilities, with rates approaching 100%. In contrast, regions such as Samarkand and Bukhara had significantly lower coverage, with rates of 54.6 and 48.7 percent, respectively. Notably, the coverage rate in Fergana region was 68.7 percent, indicating the need for targeted measures in these areas.

The urban-rural gap is significant, with urban areas generally having better access to handwashing facilities. For example, in Samarkand, the urban-rural gap in handwashing facilities is 38 percentage points, while in Fergana it is 24 percentage points. This disparity highlights the need to address the infrastructure challenges faced by rural populations.

DISCUSSION

As of 2022, approximately 81.6 percent of the country's population has access to handwashing facilities, including soap and water. Navoi region has the highest coverage rate with basic handwashing facilities at 100 percent, while regions such as Samarkand and Bukhara have significantly lower coverage rates, at 54.6 and 48.7 percent, respectively. Fergana region has a coverage rate of 68.7 percent, indicating the need for targeted measures in these areas.

The gap between urban and rural areas is significant, with urban areas having better access to hand sanitizers. For example, in Samarkand, the gap between urban and rural areas in hand sanitizer use is 38 percentage points, while in Fergana it is 24 percentage points.

The Clean Hands program was launched in May 2025. The initiative requires the installation of handwashing stations in all healthcare and educational institutions, and the provision of soap and disinfectants in public toilets and restaurants. The program aims to improve sanitation and hygiene across the country, particularly benefiting the younger generation.

CONCLUSION

These results highlight the need for targeted interventions to address regional, urban-rural, and socio-economic disparities in access to hand hygiene. Proactive government interventions, such as the Clean Hands program, are an important step towards achieving equitable access to hand hygiene for all populations.

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