

Enhancing Adolescent Reproductive Health in Rural Bangladesh: Anemia Prevalence, Associated Factors, and the Role of mHealth Interventions

Md Moshir Rahman

Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

Abstract

Adolescent reproductive health in rural areas of developing countries faces several interconnected challenges, affecting both health and social outcomes. In many rural regions, educational programs are limited or absent about menstruation, contraception, and other health topics, resulting in misinformation or a complete lack of awareness. Anemia is a significant public health challenge, especially among adolescent girls in rural Bangladesh, largely due to limited nutritional knowledge and poor dietary intake. This study evaluated the effects of a mobile health (mHealth) education intervention aimed at increasing hemoglobin levels, improving knowledge, attitudes, and practices (KAP) related to anemia, and fostering healthier lifestyles among adolescent girls in rural Bangladesh. In this school-based randomized control trial, 138 adolescent girls with anemia were randomized into intervention (n=69) and control (n=69) groups. The intervention group received mHealth-based counseling and health education over eight months, while the control group received standard care. Primary outcomes included increased hemoglobin levels and anemia reduction, while secondary outcomes assessed improvements in KAP, BMI, mid-upper arm circumference, and hip and waist measurements. Results showed significant hemoglobin increases in the intervention group, with a 25.8% recovery rate compared to 13.6% in the control group. Additionally, the intervention group demonstrated significant improvements in BMI, body measurements, and KAP scores related to anemia. These findings highlight mHealth's potential as an effective tool in addressing anemia in rural Bangladeshi adolescents, supporting broader implementation of mobile health interventions for improving adolescent health in low- and middle-income settings. This study also investigated irregular menstruation among adolescent girls in rural Bangladesh, finding a 22% prevalence. Abdominal obesity was a significant risk factor, while a father's education was a protective factor. The study highlights the need for school-based health screenings, nutrition and lifestyle education, and reproductive health awareness for adolescents.



About:

Dr. Md. Moshir Rahman is a distinguished public health physician with extensive expertise in global health, epidemiology, and healthcare management. His work focuses on public health research, population health science, and healthcare leadership, emphasizing multidisciplinary collaborations to advance the Sustainable Development Goals (SDGs). Dr. Rahman's contributions extend to molecular research in areas such as DNA extraction, cloning, and sequencing, showcasing his diverse skill set in both public health and biomedical sciences. He has also played a significant role in course curriculum development and public health trials, furthering education and research in the global health field.