

SUMMARY

Acute Respiratory Infection (ARI) is a type of acute disease that can affect one or more respiratory tract segments. One of the main causes of ARI in children is the influenza virus, which still remains a global public health burden. Within the Orthomyxoviridae family, influenza is classified as an enveloped, negative-sense, single-stranded RNA (ssRNA) virus that causes significant morbidity and mortality. The influence of molecular surveillance is still limited, especially in highland areas like Banjarnegara's Batur District. This study employed RT-PCR to detect influenza virus in pediatric ARI cases in order to determine the incidence of influenza virus and investigate related epidemiological risk factors.

Purposive sampling was used in a cross-sectional survey design. Between December 2023 and June 2024, 70 nasopharyngeal (NP) swab specimens were taken from children with ARI who were ages 0–12 at Puskesmas Batur I and II. The Zymo Direct-Zol RNA Miniprep kit was used for RNA extraction, and cDNA synthesis came next. A 243 bp amplicon was produced by RT-PCR directed against the influenza matrix (M) gene, and the results were verified by electrophoresis on a 1.5% agarose gel. Structured questionnaires were used to collect epidemiological data, such as age, sex, vaccination status, cigarette smoke exposure, and previous ARI cases in the home or neighborhood.

The findings revealed a moderate prevalence of influenza virus, with 21 out of 70 samples (30%) testing positive. ISPA_D_024, ISPA_D_026, ISPA_D_029, ISPA_D_031, ISPA_D_039, ISPA_D_041, ISPA_D_045, ISPA_D_048, ISPA_D_049, ISPA_D_050, ISPA_D_051, ISPA_D_052, ISPA_D_060, ISPA_D_061, ISPA_D_062, ISPA_D_064, ISPA_D_065, ISPA_D_066, ISPA_D_067, ISPA_D_067, ISPA_D_068, and ISPA_D_069 were among the samples that were found to be positive. Increased infection rates were strongly associated with incomplete vaccination, exposure to home cigarette smoke, and a history of ARI in the surrounding environment. This study emphasizes the accuracy of RT-PCR for influenza identification as well as the importance of preventive measures including vaccination, improved environmental hygiene, and parental education.

Keywords: *Acute Respiratory Infection, children, influenza virus, risk factor, RT-PCR*