European Respiratory Society
Annual Congress 2012

Abstract Number: 88

Publication Number: P4663

Abstract Group: 7.6. Paediatric Respiratory Epidemiology

Keyword 1: Adolescents **Keyword 2:** Epidemiology **Keyword 3:** No keyword

Title: Allergic diseases in urban/rural environment: Are there differences in diet, body mass index and physical activity?

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Body: Background: Higher prevalence rates of allergic diseases in urban, compared to rural, area have been reported and investigated through different hypotheses. The aim of the study was to explore the association of asthma, allergic rhinitis, and eczema with diet, BMI, and physical activity in the both areas. Methods: International Study of Asthma and Allergies in Childhood Phase 3 questionnaires were self-completed by 5507 adolescents aged 12-16 years from 8 cities and surrounding villages in R. Macedonia and used for the analysis. Chi-square test was employed to test for statistical significance in comparisons between urban/rural prevalence rates of current and ever-diagnosed asthma, allergic rhinitis, eczema and current frequent intake of 15 dietary products, BMI, TV-watching/PC-playing time daily. Results: In adolescents from urban, compared to rural, area significantly higher prevalence of current wheeze (7.2% vs. 4.9%, p=0.03) and non-significantly higher prevalence rates of ever-diagnosed asthma, current and ever-diagnosed allergic rhinitis and eczema were established. Adolescents from urban, compared to rural, area reported higher intake of milk (53.8% vs. 42.7%, p=0.00), butter (16.4% vs. 12.8%, p=0.04), and margarine (24.1% vs. 15.6%, p=0.00) and lower intake of fish (5.1% vs. 8.7%, p=0.00), and rice (8.0% vs. 12.3%, p=0.00) as well higher prevalence of TV-watching/PC-playing time ≥3 hours daily (39.1% vs. 28.8%, p=0.00). Conclusion: As the diet and sedentary lifestyle may contribute to higher asthma, allergic rhinitis and eczema prevalence rates, adequate diet and regular physical activity should be propagated among young adolescents living in urban area.