Title: Foetal exposure to maternal stressful events increases the risk of having asthma and atopic diseases in childhood

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Body: BACKGROUND: Recent findings suggest that the natural history of asthma and atopy begins in foetal life. However, studies investigating the influence of foetal exposure to stressful life events (SLE) on asthma and atopic diseases are lacking. AIM: To test whether the children of mothers who had experienced SLE during pregnancy are at an increased risk for asthma, atopic eczema and allergic rhinitis. METHODS: The association between maternal SLE (at least one among: divorce, mourning or loss of the job) during pregnancy and the occurrence of asthma and atopic diseases in childhood was studied in a population (n=3854) of children, aged 3-14 years, living in Northern Italy. The parents filled in a standardized questionnaire about the children's health and the events occurred to their mothers during pregnancy. RESULTS: 337 (9%) of the mothers experienced at least one SLE during pregnancy. After adjusting for potential confounders (including risk factors of the children and their families, birth complications or drug use during pregnancy and children's characteristics at birth), the foetal exposure to SLE was positively associated with wheezing (OR: 1.45, 95%CI: 1.07-1.97), asthma (OR: 1.68, 95%CI: 1.02-2.77), allergic rhinitis (OR: 1.69, 95%CI: 1.06-2.68) and atopic eczema (OR: 1.47, 95%CI: 1.08-2.00). CONCLUSION: The children of mothers who had experienced SLE during pregnancy were at a moderately increased risk of having wheezing, asthma, eczema and allergic rhinitis during their childhood. Maternal stress during pregnancy may enhance the expression of asthma and atopic phenotypes in children, strengthening the hypothesis that proneness to atopy begins in utero.