

# Atopic eczema in school children

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**Abstract:** Information on Atopic eczema is sparse in Ethiopia. This survey was conducted to determine the prevalence of eczema among school children in Addis Ababa, Ethiopia, in 1995. A standardized self-administered questionnaire developed by the International Study of Asthma and Allergies in Children (ISAAC) was used. A total of 2951 children (52.8% were females) participated in the study. A 29.2% of life time experience of recurrent itchy rash and 22.1% of 12 months prevalence of rash was reported by the children. However, only 11.2% of the children reported having eczema. Sleep disturbing rash, a sign of severe eczema, was reported by 2.6% of children. By using a simple standardized questionnaire, an internationally comparable local data was generated by this study. However, further studies with a more objective diagnostic criteria which includes skin prick test is recommended. [*Ethiop. J. Health Dev.* 2000;14(1):105-108]

## Introduction

Atopic eczema (synonymous with Atopic dermatitis) is an inflammatory skin disorder characterized by itching and a predilection for the flexure sites (1). Although Atopic eczema is not a life threatening disease, the constant scratching associated with it may result in skin damage, secondary infection, and sleep loss to both children and parents (1). Despite this burden of morbidity, little is known about the causes of Atopic eczema (1). Moreover, several studies have suggested that the prevalence of eczema has increased two-to three-fold over the past 30 years (3). Some of this increase could probably be related to variations in the diagnostic criteria. However a genuine increase in the magnitude of eczema has been noted in several studies that have used objective criteria and methods (3). Although several population-based studies of Atopic eczema has been conducted in Europe (4), comparison of disease prevalence between countries have been virtually impossible because of lack of standardized diagnostic criteria suitable for use in epidemiological studies (4,5).

In order to make international comparisons feasible, the International Study of Asthma and

Allergies in Childhood (ISAAC) prepared a simple and standardized questionnaire. This survey instrument can be applied worldwide to describe the magnitude and geographic distribution of Atopic eczema and other allergic diseases (6). In Ethiopia, few hospital-based studies have been done to determine the pattern and prevalence of skin diseases in general (7-13). No community-based survey has been done to specifically study the prevalence of Atopic eczema except the Jimma study (1) which was conducted at about the same time with this study.

The aim of this study was to determine the prevalence of Atopic eczema in school children. Moreover, by using a simple standardized questionnaire, we have made international comparison feasible with other studies which have used similar module.

## Methods

This study was a descriptive, cross sectional study. Subjects were recruited from schools in Addis Ababa, the capital city of Ethiopia. At the time of this survey, Addis Ababa had 153 junior secondary schools. Study schools were selected using a multi-stage sampling strategy. First, out of the 153 schools, 28 were selected by simple random sampling. The list of schools was obtained from the Addis Ababa Education Bureau. From each school, two sections of the 7th grade students were selected

by simple random sampling. In schools where there were only two or less sections, all sections were included. Then, all students who were aged 13 and 14 years were enrolled in the study. Children of these age were selected because of their ability to fill the self-administered questionnaire.

The sample size calculation was based with the intention of detecting a 2% difference of severe Atopic eczema between two centers (for instance one having 3% and the other having 5% prevalence of severe eczema), with the study power of 99% and at 99% level of significance. These assumptions required a sample size of 3000. However, a far less sample size was adequate to detect the prevalence of the symptoms of the eczema as they are more common than symptoms of severe Atopic eczema (6).

The data was collected using a standardized and self-administered questionnaire developed by ISAAC (6). The study was part of a multi-center international study. The questionnaire was adapted and translated into Amharic, the national language. Standard guidelines for translation of the questionnaire from English into the local language was used (14). The questionnaire was pre-tested on children who didn't participate in the actual study to evaluate its validity locally. Trained physicians were available to give explanation on how to fill the questionnaire and to give clarification for any inquiry made by the students.

The questions to determine the prevalence of Atopic eczema and related symptoms related symetoms were adopted from the ISAAC manual and are as follows (6).

1. Have you ever had an itchy rash that was coming and going for at least six months?
2. Have you had this itchy rash at any time in the last twelve months?
3. Has this itchy rash at any time affected any of the following places: the folds of the elbows, behind the knees, in front of the ankles, under the buttocks, or around the neck, ears, or eyes?

If yes to question 3:

4. In the last 12 months, how often, on average, have you been kept awake at night by this itchy rash? (Never in the last 12 months, less than 1 night per week, 1 or more nights per week).

5. Have you ever had eczema?

**Operational Definitions**

1. The presence of an itchy, relapsing skin rash in the preceding 12 months that had affected the skin creases (flexural parts) was considered as Atopic eczema.
2. Atopic eczema symptoms resulting in sleep disturbance for one or more nights per week was considered as severe Atopic eczema.

The questions were based on diagnostic criteria that were being developed by a UK national case control study, which set out to develop a minimum list of reliable discriminators for other Atopic Dermatitis (15).

Data was then processed using EPI-Info-Version 6 statistical software. Prevalence rates were calculated for the major symptoms. Ethical approval was obtained from the Faculty of Medicine, Addis Ababa University.

**Results**

A total of 2951 children aged 13 and 14 years completed the questionnaire. There were 1558(52.8%) females and 1393(47.2%) males with female-to-male ratio of 1.1:1. Of these, 1619(54.9%) were 13 years old while the remaining 1332(45.1%) were 14 years old.

Table 1: Prevalence of Atopic eczema and related symptoms in the last 12 months among school children in Addis Ababa, Ethiopia, 1995(N = 2951).

	Frequency	Percentage
Recurrent Itchy rash ever	863	29.2%
Atopic eczema* *	587	11.2%
Reported having eczema	331	19.9%
Severe eczema*	77	2.6%

\*Full-fill the operational definition (see methods and materials section).

The life-time prevalence of a recurrent, itchy rash was found to be 29.2% while only 22.1% reported similar rash in the past 12 month period. However, only 331(11.2%) of the children reported having eczema the prevalence of symptoms of severe eczema in the last 12 months was 2.6%. There was a male preponderance for both symptoms of eczema ever and severe eczema, but only the former reached a significant level at  $p$ -value  $< 0.05$  (OR = 1.34 95% CI (1.06, 1.70)). On the other hand, the prevalence of rash ever was found to be slightly higher among girls than boys but did not reach significant level (OR (95% CI) = 0.92(0.78, 1.08)).

### Discussion

This survey has provided local data concerning the prevalence of symptoms of eczema among school children in Addis Ababa, by using a simple standardized questionnaire.

Comparison of the findings of this study is made with the results of the various ISAAC collaborative centres which have used similar module (1). Accordingly, the 12 month prevalence of symptoms of self reported eczema in our study was found to be 19.9%, which was similar to studies done in Ibadan, Nigeria (17.7%) and Helsinki, Finland (17.3%) but different from results found from Jimma, Ethiopia (3.2%) and Beijing, China (1.6%) (1). A similar variation was also noted in the prevalence of reported eczema ever (life-time occurrence). Accordingly, the prevalence of reported eczema in our study was found to be 11.2% which is similar to that observed in Eldoret, Kenya (13.2%) and Recife, Brazil (11.4%) but different from studies done in Jimma, Ethiopia (5.6%) and in Kutaisi, Georgia (4.1%) (1). These findings clearly demonstrate the geographic variation in the occurrence of eczema among children. This could serve as a starting point for looking at etiologic factors of eczema. The severity of eczema was assessed by asking the frequency of sleep disturbing rash rather than by determining the extent of skin involvement due to the difficulty of using such criteria in the

questionnaire method (6).

Accordingly, the prevalence of symptoms of severe Atopic eczema was found to be 2.6% in our study which is similar to other studies done in Eldoret, Kenya (2.4%) and from Cape Town, South Africa (2.3%) but different from the results found from Bombay, India (0.1%), Beijing, China (0.2%), and Jimma, Ethiopia (0.8%) (1).

A significant variation in the prevalence of reported symptoms of Atopic eczema and severe eczema has been noted between and within countries inhabited by similar ethnic groups (1). For instances, the prevalence of reported symptoms of both eczema and severe eczema was noted to be higher in this study as compared to the Jimma study, which is the 2nd ISAAC study center in Ethiopia (1). No obvious reason was found which would explain the apparent difference seen between the two centres. However, some unidentified genetic, environmental, and socio-economic factors might have played a role.

It is interesting to note that an itchy rash, which is one of the most important symptoms of Atopic eczema, can occur as the result of various infestations and skin infections. Since these skin diseases are very common in many of the developing countries like ours, it might be worth doing studies with more objective criteria (15) to verify how much they strongly correlate with findings obtained by the questionnaire method.

In conclusion, this study has shown that the prevalence of Atopic eczema among school children in Addis Ababa is significantly high. However, further studies with more objective criteria (15) and skin prick test are recommended.

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