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# Evaluation of Development in the Children of Seasonal Agricultural Workers

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**Abstract**

Children of seasonal agricultural workers, are a group of migrants in Turkey where agricultural production is intense, having a significant part of the year in unhealthy habitats in agricultural areas and having access to services [1,2]. In this group, many temporary or permanent health problems may arise due to the conditions of accommodation and malnutrition [3]. Our aim is to assess the growth and development of children of seasonal agricultural workers. The study is a cross-sectional field study in the agricultural regions of Eskişehir city and districts starting from 1 July 2017. In our study, children of 119 seasonal agricultural workers under the age of 18 were included. In the study, 11 different agricultural regions were visited and the height, weight, body mass index and head circumference of the children were measured and the percentile values were calculated. In the study group ; children of seasonal agricultural workers were 53 (44.5%) male and 66 (55.5%) female. Their ages ranged from 0 to 16 years with a mean of 7.37 ± 3.58 years. 29.4% of the children of seasonal agricultural workers had both height and weight measurements of 5P or less. Growth and development retardation is one of the important diseases among the children of seasonal agricultural workers.

***Key words:*** Seasonal agricultural worker; growth retardation; Eskisehir.

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## 1. Introduction

Agricultural workers are among the most socially, economically and medically vulnerable populations at risk for malnutrition. Seasonal agricultural workers living in tent areas, especially children, have problems in accessing the most basic rights. This group of children is one of the most fragile child groups. All rights, especially the life and health of children, who live in unhealthy conditions brought by the accommodation conditions and who are born under inadequate hygiene conditions and who try to grow and live, are under threat [4]. These children work with their family in fields or tents or spend their day. This lifestyle also negatively reflects the growth of children [5]. While biological factors play a role in the early stages of development in children, environmental factors play a more effective role in later periods [6]. Factors such as shelter, home conditions and environmental conditions of children involved in the seasonal agricultural process are important indicators that determine the living conditions and health level of the child [7]. In addition, children living in poverty in these conditions and also from families with a low level of mother education have more risks for malnutrition, behavioral disorders, mental retardation, developmental retardation, learning disability, and health impairment [8]. Various anthropometric indices are used to detect nutritional disorders early. By using these developed anthropometric indexes, height and weight measurements of children are made and used as parameters in the growth and nutritional assessment of children [9,10]. In our study, we aimed to evaluate the growth and development of seasonal agricultural workers by using the height, weight and head measurement indices, which are the anthropometric measurements.

## 2. Material and Method

The study is a cross-sectional field study in the agricultural regions of Eskişehir city and districts starting from 1 July 2017. In our study, children of 119 seasonal agricultural workers under the age of 18 were included. In the study, 11 different agricultural regions were visited and the height, weight, body mass index and head circumference of the children were measured and the percentile values were calculated. Height and head circumference were measured by tape measure, weight was measured by hand weighbridge in children under two years old, and calibrated ground scales in older children. The children were weighed with athletes and pants, without shoes. In our study, those with height percentile values <5P were defined as "short stature" and those with body weight percentile values <5P were defined as "insufficient weight gain". Body mass index percentiles were calculated in children> 24 months and those with ≤5P were defined as "low weight", those with 5P-84P as "normal", 85P-94P were "overweight" and those with ≥95P as "obese". Head circumference values were calculated in children ≥36 months and those with <3P were defined as "head circumference small". The data were evaluated in the IBM SPSS (version 20.0) statistical package program.

## 3. Results

In the study group ; children of seasonal agricultural workers were 53 (44.5%) male and 66 (55.5%) female. Their ages ranged from 0 to 16 years with a mean of 7.37 ± 3.58 years. In the study group, 58.8% of the children of seasonal agricultural workers had a height percentile value <5P. In the study group, 66.0% of males and 53.0% of females had body height of 5P and less.

**Table 1:** Distribution of height measurements of children of seasonal agricultural workers by height percentile in the study group.

| **Height Percentile Values** | **N= (%)** |
|---|---|
| ≤5P | 70 (58.8) |
| >5P | 49 (41.2) |
| **Total** | 119 (100.0) |

In the study group, 39.5% of the children of seasonal agricultural workers had a weight percentile value <5P. In the study group, 43.4% of males and 36.4% of females had body weight of 5P or less.

**Table 2:** Distribution of weight measurements of children of seasonal agricultural workers by weight percentile in the study group.

| **Weight Percentile Values** | **N= (%)** |
|---|---|
| ≤5P | 47 (39.5) |
| >5P | 72 (60.5) |
| **Total** | 119 (100.0) |

In the study group, 20.8% of the children of seasonal agricultural workers had a body mass index percentile value <5P. In the study group, 32.7% of males and 19.3% of females had body mass index of 95P or more.

**Table 3:** Distribution of height and weight measurements of children of seasonal agricultural workers by body mass index percentiles in the study group.

| **BMI Percentile Values** | **N= (%)** |
|---|---|
| ≤5P | 22 (20.8) |
| 5P-84P | 47 (44.3) |
| 85P-94P | 10 (9.4) |
| ≥95P | 27 (25.5) |
| **Total** | 106(100.0) |

*: > Evaluated on children over 24 months.

45% of children of seasonal agricultural workers had a head circumference value of <3P. In the study group, 28.6% of males and 53.8% of females had a head circumference value of <3P. 29.4% of the children of seasonal agricultural workers had both height and weight measurements of 5P or less.

**4. Discussion**

In our study group, 58.8% of the children of seasonal agricultural workers had a height percentile value <5P and

in our study group, 66.0% of males and 53.0% of females had body height of 5P or less. Short stature was more pronounced in males than their peers. Desai and his colleagues found that the mean body heights of the children of seasonal agricultural workers are lower than means of 50th percentile curves of National Center for Health Statistics [11]. The results of this study in the children of agricultural migrant workers in Southern Brazil are similar to our results [12]. In our study group, 39.5% of the children of seasonal agricultural workers had a weight percentile value <5P. Desai and his colleagues found similar results in the study of the children of agricultural migrant workers in Southern Brazil [12]. In the study group, 32.7% of males and 19.3% of females had body mass index of 95P or more. Kilanowski and his colleagues found that 33% of the migrant farmworker children aged 2 years and older were categorized as overweight. In the same study, 41% of the migrant farmworker children aged 6 to 11 years were categorized as overweight [13]. Ersoy and his colleagues found that in children of non-seasonal agricultural workers was short stature 7.46% and underweight 4.12% in Turkey [14]. In the same study, short stature ratio was found to be significantly higher in children with very poor socioeconomic level. In the study evaluating the nutritional status of children who are not seasonal agricultural workers in Mozambique with anthropometric data, it was reported that short stature and low weight were observed at the lowest socioeconomic level [15]. 45% of children of seasonal agricultural workers had a head circumference value of <3P. In a study performed in non-seasonal farm worker children in Turkey, there was no significant association between nutritional status and head circumference [16]. These results can be considered as an indicator of growth retardation among children due to nutritional deficiency due to living conditions. Similarly, in a study by Mohsena and his colleagues in 2018 in agro-ecological environments found in Bangladesh found that the percentage of all nutritional deficiencies in children was significantly higher than in the normal population [17]. This study has several limitations. The study was conducted in Eskişehir region only, seasonal agricultural workers living in other provinces were not included in the study. Detailed blood tests cannot be performed in children. Families did not know whether children had a chronic disease that could cause developmental delay.

## 5. Conclusions

Growth and development retardation is one of the important diseases among the children of seasonal agricultural workers.

## 6. Recommendations

It may be beneficial for seasonal agricultural workers to conduct screenings for early diagnosis and treatment of the growth and developmental retardation of their children and to direct the cases to specialist medicine. Awareness can be raised in families by informing children of seasonal agricultural workers about growth and developmental delays. More comprehensive studies are needed to reveal the level of growth and developmental delay in the children of seasonal agricultural workers.

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