IS USING A SPECIFIC GROWTH CHARTS A CHANCE TO BE MORE PRECISE IN EVALUATION THE GROWTH OF THE CHILDREN AND ADOLESCENCE WITH DOWN SYNDROME?

Comparison of the Down`s syndrome growth charts with the growth charts for Polish population.

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INTRODUCTION

Down syndrome (DS) is a chromosomal disorder. Children with DS have different height and weight patterns compared to children without DS. **The aim of our study was to compare anthropometric parameters** (expressed in standard deviation score-SDS) **of people with DS using charts for DS and population (P) charts.**

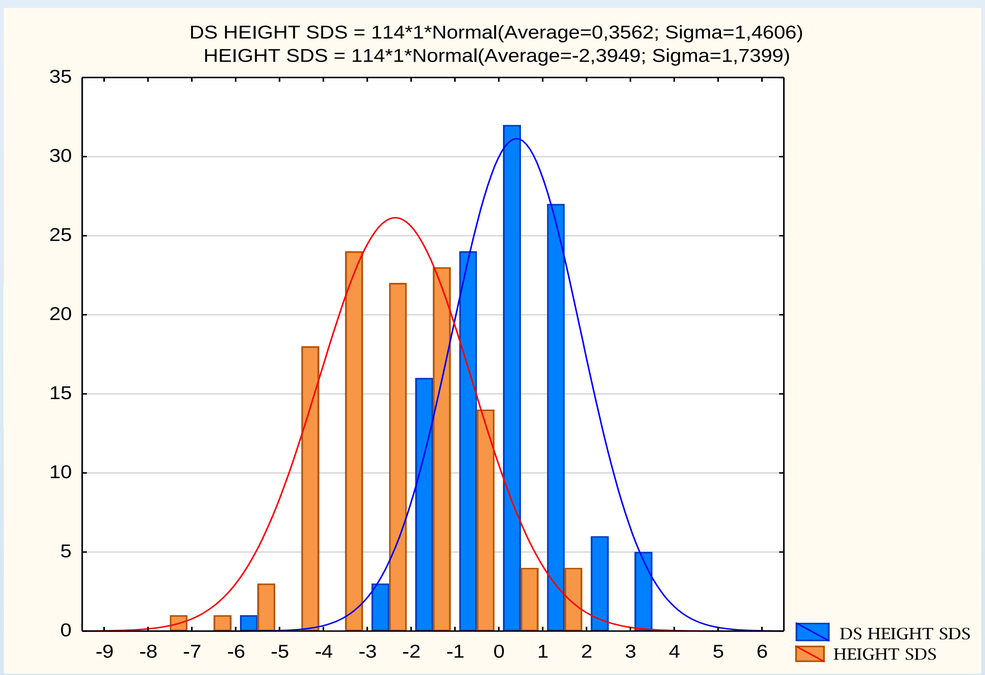
MATERIALS AND METHODS

The study group consisted of 114 people with DS (64 girls), aged 4months-36years (average age:8,2) from Poland. Body weight, height and BMI were expressed in the SDS values using growth charts for children with DS and for population. For data analysis we assumed that: values <3pc [<-1,88 SDS], 10-90pc [≥-1,66,≤1,66 SDS], >97pc [>1,88 SDS]. In addition, an online survey was conducted. The study group consisted of 183 parents of children with DS. The questionnaire consisted of three questions and concerned the topic of centile grids.

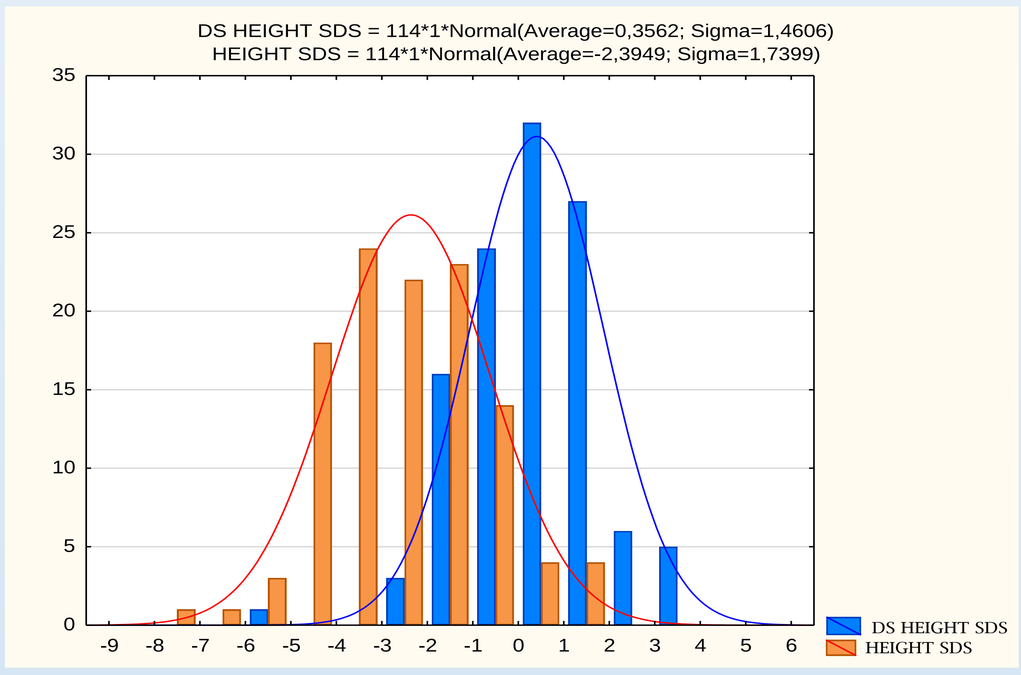
RESULTS

There are significant differences between average values of SDS for DS charts and P charts. Differential in SDS ranges: height 2,75±0,79 (p=0,00); weight 0,94±0,80 (p=0,00); BMI 0,2±1,73 (p=0,20). According to the P height charts, the prevalence of growth deficiency (<3pc) was higher than that based on the DS charts (69% vs 4%). The amount of records within the norm was lower for P charts (32% vs 77%). According to weight charts, prevalence of records <3pc were higher for P than DS charts (33% vs 5%); records within the norm were lower for P than DS charts (55% vs 79%); records >97pc were lower for P (5% vs 7%). According to population BMI charts, the prevalence of obesity is higher for P than DS charts (12% vs 1%); normal body weight is lower for P than DS charts (39% vs 61%); underweight is higher for P than DS charts (42% vs 31%).

Histogram 1. The curve fitting of the normal distribution for both measurement groups (DS and P charts) for height [x- SDS; y-number of records]



Histogram 2. The curve fitting of the normal distribution for both measurement groups (DS and P charts) for weight [x- SDS; y-number of records]



Histogram 3. The curve fitting of the normal distribution for both measurement groups (DS and P charts) for BMI [x- SDS; y-number of records]

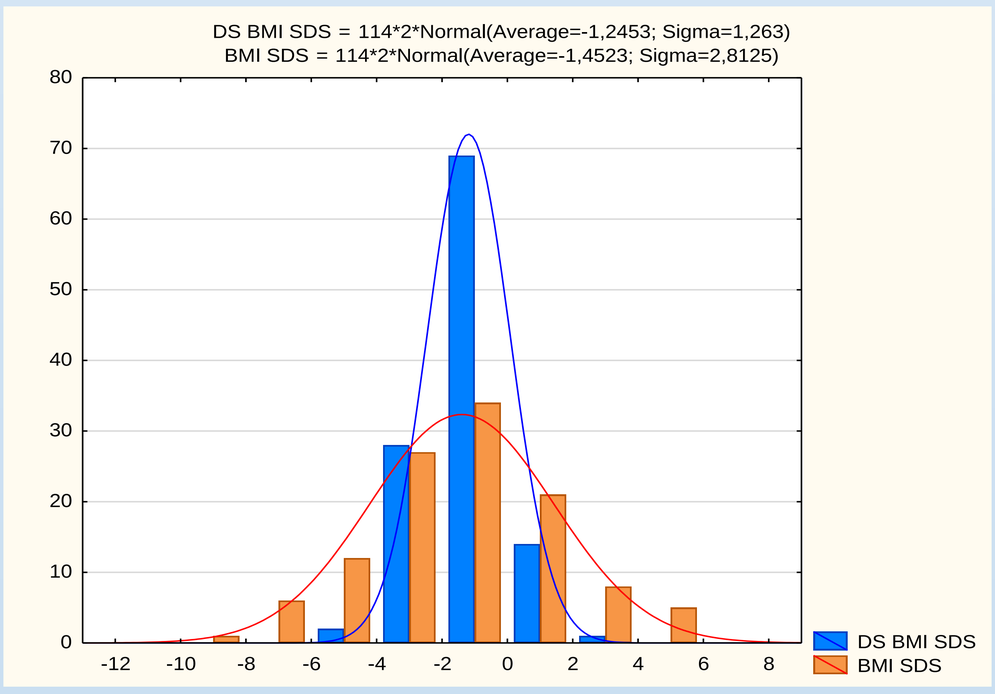


Table 1. Comparison of the number of children (%) on the percentile data in charts (DS vs P) for height

HEIGHT		
	Down Syndrome	Populational
<3pc	4%	**69%**
10-90pc	**88%**	37%
>97pc	**13%**	1%

Table 2. Comparison of the number of children (%) on the percentile data in charts (DS vs P) for weight

WEIGHT		
	Down Syndrome	Populational
<3pc	**8%**	6%
10-90pc	**90%**	63%
>97pc	6%	**38%**

Table 3. Comparison of the number of children (%) on the percentile data in charts (DS vs P) for BMI

BMI		
	Down Syndrome	Populational
<3pc	35%	**48%**
10-90pc	**69%**	45%
>97pc	1%	**14%**

Table 4. Online survey results

	YES	NO
QUESTION 1: Have you ever heard about specific growth charts for children with DS?	**71%**	**29%**
QUESTION 2: Have any of clinicians used a special chart at least once?	**22,4%**	**77,6%**
QUESTION 3: Are special growth charts important? Would you like them to be widely used?	**94,5%**	**5,5%**

CONCLUSIONS

The differences between DS charts and P charts were identificated. Growth charts for children with DS are essential for guiding clinicians and families in monitoring the growth of people with DS. The DS charts can be used as tools to provide indications of how growth of child compares with peers of the same age and sex without DS. Most parents are aware of existence of specific charts, unfortunately most clinicians do not use them.