

## The tendency of parents' perception about underestimating the body weight and height of their own children under five years old

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### ABSTRAK

**Latar belakang:** Proporsi balita gizi lebih dan gizi kurang masih cukup tinggi di Indonesia. Penanggulangan masalah gizi sangat penting dilakukan karena memiliki dampak kesehatan jangka panjang. Penyelesaian masalah gizi buruk dan gizi lebih di Indonesia terkendala dengan kurangnya efektivitas program intervensi dan pola asuh yang diberikan orang tua kepada anak. Salah satu hal yang mempengaruhi keberhasilan penanggulangan masalah gizi adalah persepsi orang tua terhadap status gizi balita.

**Tujuan:** Penelitian ini bertujuan untuk menilai persepsi orang tua terhadap status gizi balita yang dikelompokkan antara berat badan atau tinggi badan menurut umur.

**Metode:** Penelitian menggunakan desain potonglintang dengan memberikan kuesioner penilaian persepsi kepada orangtua yang memiliki anak balita dan datang ke posyandu di 11 Padukuhan di Kecamatan Seyegan, DI Yogyakarta. Penelitian berfokus pada penilaian persepsi orang tua terhadap berat badan dan tinggi badan anak menurut umur dan apakah orang tua mengalami underestimasi atau overestimasi terhadap status gizi anak-anaknya.

**Hasil:** Terdapat 89 responden yang bersedia mengikuti penelitian ini. Dari jumlah tersebut, 27 orang tua (30%) memiliki overestimasi bahwa anaknya gemuk atau normal, padahal apabila menurut kurva z-skor, anak tergolong kurus. Terdapat 10 orang tua (11,2%) underestimasi terhadap tinggi badan anak yang sebenarnya normal atau tinggi namun dianggap pendek. Sebaliknya, 5 orang tua (5,6%) mengalami overestimasi dengan menganggap tinggi badan anaknya normal atau tinggi padahal sebenarnya tergolong pendek menurut kurva z-skor.

**Kesimpulan:** Masih terdapat kesalahan persepsi orang tua terhadap status gizi anaknya. Penelitian lebih lanjut diperlukan untuk mendalami faktor-faktor yang mempengaruhi persepsi dan bagaimana cara mengubahnya sehingga pola asuh orang tua dan penerimaan terhadap program perbaikan gizi menjadi lebih baik.

**KATA KUNCI:** persepsi, berat badan, tinggi badan, balita, status gizi

### ABSTRACT

**Background:** The proportion of over- and under-nutrition is still high in Indonesia. Overcoming the nutritional problems is important since it can lead to long term health impacts. However, there are some problems that inhibit the intervention program such as low effectiveness and inappropriate parenting. One thing that affects the success of the program is about parents' perception of the nutritional status of their children.

**Objectives:** The study aimed to identify the perception of the parents towards the nutritional status of their children, which is categorized as body weight and height to age.

**Methods:** The research use cross-sectional design by giving the questionnaire to the parents who have children under-five and go to Posyandu in 11 villages in Seyegan, DI Yogyakarta. The study focused on the judgment of the parents towards the height and weight to the age of their children and whether the parents under- or overestimate the nutritional status of their children.

**Results:** There were 89 respondents following the study. From the number, there were 27 parents (30%) who overestimate their children by assuming the children to be overweight while according to z-score they

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was categorized as wasted. There were 10 parents (11.2%) who underestimate the height of their children by assuming that their children was stunted while they was not. On the other hand, 5 parents (5.6%) overestimate the height of their children by saying they had normal height while the fact they were stunted.

**Conclusion:** There is still misperception among the parents about the nutritional status of their children. Further study is needed to identify what factors affecting the perception and how to change it so that the nutritional intervention program and parenting can be better.

**KEYWORDS:** perception, body weight, body height, children under-five, nutritional status

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## INTRODUCTION

Nutritional problems of the children are not only about undernutrition but also overnutrition. Both problems do have negative effects on their health in the future if do not tackle as early as possible. Undernutrition problems, such as stunting, may lower the cognitive function, immunity, and their productivity as an adult (1,2). Meanwhile, overnutrition among children under-five can increase the risk of cardiovascular disease, metabolic syndrome, and psycho-social disorder in the future (3). An article mentioned that obese child or adolescent is 5 times higher to develop obesity in their adults compared to children or adolescent who do not obese (4).

Nationally, there are reducing the proportion of children under-five who is stunted and severe stunted in 2018 (30.8%) compared to 2013 (37.2%). According to Indonesian Basic Health Research (RISKESDAS) 2018, the proportion of severe stunted children under-five in 2018 are 11.5%, is lower than that in 2013 which reach 18%. However, the proportion of stunted children under-five are remained constant from 19.2% in 2013 to 19.3% in 2018. Although there a is small reducing number of proportion in the severe stunted category, the problem of stunting remains one of the main nutritional problems in Indonesia. It is due to the large proportion of stunted children under-five in several provinces of Indonesia which reach more than 40%. RISKESDAS 2018 reported that the proportion of wasted and severe wasted is almost the same. There were reducing proportion in the severe wasted category from 5.7% in 2013 to 3.9% in 2018. However, the proportion of wasted children remains the same at 13%. It is also the same as the proportion of overweight children under-five is 11.8%

in 2013 to 8% in 2018. Although the proportion is reduced, there are 13 provinces in Indonesia which have the proportion of overweight children under-five higher than the national proportion (5).

National Team for the Acceleration of Poverty Reduction (TNP2K) stated that there are several factors inhibit the success of nutritional intervention program. Some problems are 1) stunting prevention programs are ineffective, 2) the coordination between the sensitive and specific program is not optimum, 3) low efficiency and effectiveness of the resources for the program, 4) limited capacity of the stakeholder, and 5) low advocacy and campaign about stunting and other nutritional problems (6,7).

From these 5 factors, advocacy is really important since it directly affects the parenting habit (8). The parenting habit is affected by the parents' perception of the nutritional status of their children. Perceptions explained as a unique source of how to experience something (9). According to Chávez Caraza et al. (10), parents of overweight and obese children are prone to misperceive the nutritional status of their children. For example, they see overweight children as a symbol of wealth and health compared to thin children. This situation called underestimating the nutritional status of the children. On the other hand, if parents tend to see children as overweight in spite of their actual nutritional status as normal, is called overestimating the nutritional status of the children (11). Misperception of the nutritional status, either over or underestimate, may affect the feeding practice and parenting habit of the parents towards their children. A review by Francescatto et al. (12) mentioned that underestimating nutritional status of the children who is actually overweight will affect the responsiveness of the parents toward nutritional intervention program. This study

aimed to identify the parents' perception towards the nutritional status of their children compared to weight and height for age z-score (WAZ and HAZ). The assessment towards parents' perception is important since it may show the effectiveness of nutritional problem advocacy and plays as the evidence for further intervention in order to change the perception.

## MATERIALS AND METHODS

### Study design

The study used cross-sectional design by giving a questionnaire to assess the perception of the parents toward the height and weight of their children under five years old. Respondents are chosen by purposive sampling method. The researcher was set some inclusion criteria then choose the respondents based on those criteria. Respondents who purposively asked to join the study are parents who attend *Posyandu* and have children under-five years old. The study was done in 11 villages of Seyegan sub-district, Sleman Regency, DI Yogyakarta in 2018 from May to October. Ethics Committee of the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, gave the ethical permission with the reference number KE/FK/0640/EC.

### Assessment of parents' perception of the nutritional status of their children based on appearances and body weight

Assessment is conducted by giving the parents a questionnaire to examine their perception of the nutritional status of the children then compared to their real nutritional status. The questionnaire will ask the parent about how they perceive the nutritional status of the children based on the appearances and weight of their children. They were asked to write one of the 5 categories of nutritional status such as obese, overweight, normal, wasted, and severe wasted. The results will be compared with the real nutritional status of the children based on some anthropometry indexes include weight for age z-score (WAZ) and height for age z-score (HAZ). Parents considered as underestimating if the perceived nutritional status

is lower than actual nutritional status. Meanwhile, if the perceived nutritional status is higher than the actual, it considered as overestimating.

### Statistical analysis

The analysis will be conducted using STATA 12. Parents' perception of the height and weight of their own children will be compared using z-score indexes. The mean value of the height and weight according to the gender will be analysed using the independent t-test. The accuracy of the survey will be assessed by using demographic characteristics and anthropometry data analyses. The relation between categorical variables will be determined using chi-squared test while the normality of data distribution will analyze using Saphiro-Wilk test.

## RESULTS

**Table 1** shows the characteristics of the respondents. From total of 93 parents who came to the *Posyandu* in 11 villages in Seyegan Sub-district, there was 89 questionnaires which was fully filled. 51% of the subjects have a daughter and most of the children are under 3 years old. More than 50% of the parents were graduated from a senior high/ vocational school. Most of the mothers were a housewife while the fathers worked as an entrepreneur or labor. The monthly income of the family was varied from 1 to 3 million rupiahs.

As shown in **Table 2**, most of all of the parents assumed that their children had a normal weight (52 parents). However, according to the weight for age z-score index, it could be wrong. There were 1 parent who thought that their children were severely wasted while according to WAZ, they had normal weight. It suggested that parents tend to underestimate the weight of their children. On the other hand, there were 27 parents who overestimated the weight of their children by saying that they were overweight or normal while in fact they were categorized as wasted.

Parents' perception of the height of their children compared to the height for age z-score (HAZ) category can be seen in **Table 3**. 64 parents assume that their children have normal height.

Table 1. Demography characteristics

Characteristics	n (%)		P value
	Male	Female	
Total	43 (48.31)	46 (51.69)	
Age of the children (years old)			
0 - ≤ 1	14 (32.55)	15 (32.61)	0.85
> 1 - ≤ 2	9 (20.93)	13 (28.26)	
> 2 - ≤ 3	13 (30.23)	9 (19.57)	
> 3 - ≤ 4	6 (13.5)	8 (17.39)	
> 4 - ≤ 5	1 (2.33)	1 (2.25)	
State at birth			
Premature	3 (6.98)	3 (6.52)	0.93
Low birth weight	2 (4.65)	6 (13.04)	
Ill	3 (6.98)	5 (10.87)	
Mother's educational level			
Did not attend school	0 (0.00)	0 (0.00)	0.13
Elementary school	1 (2.33)	2 (4.35)	
Junior high school	10 (23.26)	4 (8.70)	
Senior high school/ vocational	29 (67.44)	37 (80.43)	
Health diploma program	0 (0.00)	2 (4.35)	
Non-health diploma program	2 (4.65)	0 (0.00)	
Health bachelor/ master/doctoral program	0 (0.00)	1 (2.17)	
Non-health bachelor/ master/doctoral program	1 (2.33)	0 (0.00)	
Father's educational level			
Did not attend school	1 (2.33)	0 (0.00)	0.39
Elementary school	4 (9.30)	2 (4.35)	
Junior high school	9 (20.93)	5 (10.87)	
Senior high school/ vocational	27 (62.79)	36 (78.26)	
Health diploma program	1 (2.33)	2 (4.35)	
Non-health diploma program	0 (0.00)	0 (0.00)	
Health bachelor/ master/doctoral program	0 (0.00)	1 (2.17)	
Non-health bachelor/ master/doctoral program	1 (2.33)	0 (0.00)	
Mother's occupation			
Housewife	35 (81.40)	36 (78.26)	0.45
Civil servants	1 (2.33)	1 (2.17)	
Private employees	2 (4.65)	4 (8.70)	
Entrepreneur	2 (4.65)	3 (6.52)	
Farmer	3 (6.98)	0 (0.00)	
Merchant	0 (0.00)	1 (2.17)	
Labor	0 (0.00)	1 (2.17)	
Father's occupation			
Civil servants	4 (9.30)	3 (6.52)	0.30
Private employees	6 (13.95)	9 (19.57)	
Entrepreneur	10 (23.26)	14 (30.43)	
Farmer	4 (9.30)	0 (0.00)	
Merchant	2 (4.65)	0 (0.00)	
Labor	17 (39.54)	20 (43.47)	
Monthly income			
< Rp 1.000.000	5 (11.64)	3 (6.51)	0.70
≥ Rp 1.000.000 – < Rp 3.000.000	30 (69.77)	34 (73.91)	
≥ Rp 3.000.000	8 (18.61)	9 (20.68)	
Body height of the children (cm ± SD)	85.68 ± 12.49	83.52 ± 13.85	0.44
Body weight of the children (kg ± SD)	12.21 ± 3.24	11.23 ± 2.97	0.14
Body height of the mother (cm ± SD)	152.87 ± 5.67	153.26 ± 5.70	0.75
Body weight of the mother (kg ± SD)	53.60 ± 10.52	58.29 ± 12.86	0.06

**Table 2. Parents' perception of the weight of their children compared to weight for age z-score (WAZ) category**

Parents' perception of the weight of their children	Weight for Age z-score (WAZ)					Total
	Severe wasted	Wasted	Normal	Overweight	Obese	
Severe wasted	2	1	1 <sup>a</sup>	0	0	4
Wasted	5	11	3	0	0	19
Normal	3 <sup>b</sup>	13 <sup>b</sup>	36	0	0	52
Overweight	0	1 <sup>b</sup>	7 <sup>b</sup>	1	1	10
Obese	0	0	3 <sup>b</sup>	1	0	4
Total	10	26	50	2	1	89

*p*-value = 0.000

<sup>a</sup>= Underestimated perceptions

<sup>b</sup>= Overestimated perceptions

**Table 3. Parents' perception of the height of their children compared to height for age z-score category**

Parents' perception of the height of their children	Height for Age z-score (HAZ)			Total
	Stunted	Normal	Tall	
Stunted	10	6 <sup>a</sup>	4 <sup>a</sup>	20
Normal	5 <sup>b</sup>	15	44 <sup>a</sup>	64
Tall	0	1 <sup>b</sup>	4	5
Total	12	22	52	89

*p*-value = <0.0001

<sup>a</sup>= Underestimated perceptions

<sup>b</sup>= Overestimated perceptions

However, if it was compared to the z-score category, the parents' perception could be wrong. There were 10 parents who assume that their children are stunted while in the fact they were categorized as normal or tall according to HAZ. It showed that some parents underestimate the nutritional status according to HAZ of their children. On the other hand, there were 44 parents who classify their children as normal while according to the HAZ they were tall. 5 parents of this study was also assume that their children had normal height and 1 parents assumed that their children was tall while in fact they were stunted. It proved that the parents is also tend to overestimate the height of their children.

As shown in **Table 3**, there is no relation between parents' misperception and educational level of the parents, occupational types of the parents, monthly incomes, age of the children, and other demographic factors.

## DISCUSSION

From the results, it was known that there was a difference in the parents' perception depending on the gender of their child. The boys tend to have a higher misperception about their body height and weight. The results were in opposite with Maynard (13) who conclude that the parents' perception towards their daughter is more often to be wrong compared the perception towards their son. Overweight and obese parents have a tendency to misperceive their children. Parents are often to classify the weight of their child as thinner or shorter than they actually do. It can be affected by the habits of the parents who believe that obese are genetically derived and their children have a less large body. In line with these results, a review by Francescatto et al. (12) was also mentioned that there are still many mothers in the world who underestimate the body weight of their children who is actually overweight or obese.

Parents' perception of child's growth is an important key to address nutritional problems such as stunting and obesity. Parents who have a better perception of the growth of their children are more cautious if there is a change in the growth parameters (8,14). Considering the importance of the better perception of children's growth, the medical personnel needs to increase the parents' guard by counseling or educating the parents according to the socio-demographic characteristics.

Children age 2-11 years old who is more often to be told about their growth will have a lower risk to develop obesity in their 16-19 years old. It is related to the perception and awareness of the parents to overcome the nutritional problems that can be shown during childhood time. According to Golan (15), parents are the colleague of the medical personnel in terms to face nutritional problems so that periodic communication of both sides is really important. It was supported by Garcia et al. (16) who mentioned that adolescent who is overestimating their own weight is at higher risk to bad lifestyles such as tobacco use and alcohol.

The lower educational level of the parents is an important factor that contributed to the parents' misperception towards the growth of their children. Aparício et al. (17) suggested that there is a significant perception difference of the parents according to age and educational level. It can be caused by the parents' denial about the bad nutritional status of their children due to lack of knowledge (18). Obese or stunted children who are perceived as normal by their parents tend to have a higher risk of hypertension, dyslipidemia, type 2 diabetes, and metabolic syndrome due to lack of intervention program to improve their nutritional status (19).

Lower knowledge towards stunting is predicted as one of the factors causing a high number of stunting in Seyegan, DI Yogyakarta (data is not published yet). The parents believe that have a shorter body than other children in their age is not a big deal. The parents also believe that stunting is affected by genetic and cannot be changed through environmental factors. It caused there is many misperceptions of the height of the children by their parents.

This study found there is still many parents' misperception towards the growth of their children. There are 3 factors which are contributed with this misperception: 1) parents' refusal by the fact that their children have a nutritional problem, 2) low educational level, which caused lack of knowledge, especially about nutritional status of the children, and 3) assumption that the growth of their children is on par with the growth of other children of their age.

There are several limitations to the study. The results are specified in a sub-district of Yogyakarta thus cannot be generalized to a larger population yet. The small number of subjects may cause a low variation of demographic characteristics such as the socio-economic and geography. Beside it, the study has not compared the perception difference between race, ethnic, and social status. Other studies about the parents' perception of the height and weight of their children are also limited in Indonesia so that the comparison cannot be done.

## CONCLUSION

Parents' misperception of nutritional status and growth of their children still happens. The misperception can be affected by low educational level, parents' refusal to the real nutritional status of the children, and the assumption that their children still have normal growth. Further study is needed to change the parents' perception so that there is an improvement in parenting habit and the nutritional programs for the children.

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