

Letter to explain the procedure for the publication of the article on childhood obesity definition published in October 2011 in Int J Pediatr Obes

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Childhood obesity is a major issue because of its high prevalence and its severe consequences on adult health. Prevalence studies are particularly useful to identify factors promoting obesity. These studies require adequate definitions of nutritional status, but in practice, the references, cut-offs and terminologies used vary considerably, and consequently unclear information may be found in the literature. This issue was often raised by the European Childhood Obesity Group (ECOG), and in October 2011 new recommendations were published (1).

The ECOG was created 10 years ago. This group is formed by pediatricians and other health professionals interested in pooling their experiences on childhood obesity. In 1995, recommendations for the definition of childhood obesity were proposed (2). In 2004, a position paper from the ECOG outlined the nature of the problem of childhood obesity along with information on treatment and prevention methods (3). In 2008, at the 18th ECOG meeting, it was proposed that the recommendations for the definition of childhood obesity be reconsidered and that a paper should be published with new propositions. The main objective of the paper was to summarize the current definitions for a better understanding of the different cut offs and terminologies and to propose recommendations in order to facilitate their use in different contexts and improve comparability across studies.

A first draft was submitted to ECOG members for comments on the ECOG website from May 18th to June 14th 2010 (<http://www.ecog-obesity.eu/>). A large number of ECOG members (40 members) commented the draft. Comments were integrated in a second version, however, due to editor's requirements, the text had to be substantially shortened (text and references).

The purpose of the present letter is to explain the procedure for the publication of the recommendation paper, to present the comments sent by ECOG members and to provide information that could not be included in the final version of the article.

Comments by ECOG members were as follows

All members agreed with the proposed recommendations. However some issues were raised and various comments and suggestions were provided.

Definitions

- The recommendation to use several references was discussed, but most members were in favour of this proposition. The publication of recent studies using several references (4-11) and recent recommendations (12) have strengthened the decision to propose the use of several references. Most members agreed to use the IOTF, WHO and national definitions. It was also stressed that the CDC references should be used as they are important for international comparisons. The paper stresses that the aim of the recommendation to use several definitions is not for comparison of prevalence according to the reference used, but to provide more opportunities of comparisons between studies.

- For clinical purpose, the use of national and WHO references were recommended by ECOG members.

- Many members wished that the initial table 1 presenting terminologies for the IOTF definition (Table 1) would be replaced by a table with all definitions. It was a difficult task because of the complexity of all terminologies for the different references, but a new table with all definition is presented in the final article. It is indeed very helpful to have all the information at a glance.

One member proposed to add web links to reach the reference values corresponding to the different definitions and this was done.

- Several members questioned the use of the definition of thinness, as the aim of the paper was the definition of childhood obesity. Because low BMI in infancy and childhood can be associated with adult obesity and metabolic diseases (13-15) and because most overweight adults were not overweight and even lighter during childhood (16,17), it seemed useful that thinness should also be considered. In addition, information on the thin category is useful for studies conducted in countries where obesity coexists with undernutrition.

- It was suggested to provide an example of presentation of prevalence according to the different definitions as advised in the new recommendations. A table (Table 2) is now presented in the article.

- One member who agreed with the recommendation of using several definitions in prevalence studies raised the problem of the definition to be used in studies investigating the aetiology of obesity. The answer in the article was that the practical aspects of each definition should be taken into account according to the context of the study. The IOTF definition can be used if just a cut off for obesity is needed, but if other measurements (weight, height), continuous values (Zscores) or data in early life are needed, then the use of WHO references is preferable.

Measurements

- It was suggested to discuss the limitation of the BMI. Some information (18) is given in the final version, but the discussion was more deeply developed in the longer version. Another paper (19) which evaluated the screening performance of various measurements for excess TBF% measured using underwater weighing as the reference method in male children and adolescents was included in the long version. This paper concluded that BMI, triceps skinfold and waist circumference are good predictors of total fat. Other useful references on this issue were suggested (20-23).

- Several ECOG members discussed the use of the different measurements to assess overweight. The use of skinfolds was not encouraged. The arguments were that this measure is not accurate in the obese, the callipers are expensive and this measure is more intrusive than waist circumference.

It was suggested to give more clear input on other measurements, particularly waist circumference. This was done in the final version, but more information on waist circumference and other measurements was provided in the longer version, i.e.:

Waist circumference is particularly useful because it requires inexpensive device and it is a good proxy for visceral adipose tissue which is associated with risk factors for metabolic diseases (24-27). Studies have validated the umbilical waist-to-height ratio as markers of central adiposity by the measure of the trunk fat mass index measured by Dual energy X-ray absorptiometry (DEXA) (28). The waist/height is a valuable index for selecting children at risk of cardiovascular diseases. A cut off of 0.5 identifies children at risk whatever their age or gender (29).

Measurement of arm circumference was also recommended (30,31). Following the Jelliffe and Jelliffe principle (32), in combination with arm skinfolds, the arm circumference can be used to estimate arm muscle and fat areas which can be considered as proxy measures of lean and fat body mass. A revised formula has provided a more precise assessment, particularly in the obese (33).

It was suggested to mention the use of Bioelectrical impedance analysis (BIA) and DEXA. BIA for measuring body fat is an affordable method that can be adopted in both epidemiological and clinical surveys (34). DEXA (18,28) or BIA (34) can also be considered in validation studies.

Additional reference values

It was suggested to add information on national reference values for BMI and for different other measurements

- *National reference values for BMI*: various countries have established their own references: UK (35), Italy (36), Cyprus (37), Denmark (38), Belgium (39), Portugal (40) and also Euro growth for the first 36 months of life (41)

- *Reference for various other measurements*: they were presented in the longer version: for skinfolds and arm circumference (30,31), arm fat and muscle areas (33,42), waist circumference (43), body fat assessed by BIA (44).

The differences between waist circumference cut offs to define overweight were highlighted in the paper on the definition of the pediatric metabolic syndrome in children (26).

- It was suggested to discuss the need of consensus for the choice of cut offs for the different measurements. This is mentioned in the conclusion of the final version.

Details

Finally, many “minor” comments were made by ECOG members. They were useful to improve the presentation of the paper such as the suggestion of adding subtitle or giving precisions in the writing.

Referee’s comments

In addition, many changes had to be made according to the referee’s comments. They were also very useful to improve the article.

Conclusion

In conclusion, many suggestions were proposed by ECOG members, but due to the shorter length allowed for the final version of the article, it was not possible to develop all the points

raised. The ECOG comments are presented here with complementary information and additional references which were included in the longer version.

Overall, ECOG members' comments were very useful. New information, comments and complementary information are welcome. They can be sent to mf.cachera@uren.smbh.univ-paris13.fr.

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