BODY SATISFACTION AMONG PRESCHOOL-AGE CHILDREN IN CARINTHIA (AUSTRIA)

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Abstract

Worldwide, the prevalence rates of overweight and obese children has significantly increased over the last decades. Evidence suggests that overweight and obesity may lead to serious health hazards such as diabetes mellitus typ 2, cardiovascular diseases or problems of the muscosceletal system. Therefore it is important to analyse biological, social and psychological causes of overweight. The objective of this paper was to explore the prevalence of overweight and obesity in preschool-age children and their parents as well as to discuss possible risk factors, like nutritional and recreational habits, body satisfaction, sleep duration and media consumption, associated with overweight. We conducted a cross-sectional study among 319 children aged three to six years and their parents (n = 257) in the city of Villach, Austria. Results show that the majority of children had normal weight, although one third of the mothers and more than half of the fathers were overweight or obese. Sporty children preferred vitamin-rich foods whereas children with high media consumption time liked sugary foods. In families with lower socioeconomic background, children spent significantly more time watching television. Parents can play a central role by limiting media consumption or determining their children´s bedtime. Our analysis highlights that only 22% of preschool children are satisfied with their bodies, most of them wanting to be thinner. Thus, thinness is highly valued in our society, even among the youngest. Interventions to prevent overweight have to focus on the parental-child interaction and the home setting as well as educational and societal aspects.

Keywords: Body satisfaction, childhood, overweight, obesity

Introduction

More than a third of the adult overall world population is overweight or obese, industrialized countries exhibiting a similar percentage also in

children. The total number of people concerned has increased from eight hundred and seventy-five million in1980 to 2,1 billion (Ng et al., 2014). The percentage of overweight children varies in different regions: In Austria 20% of the young population between six and fourteen years is affected (Zwiauer et al., 2007). The Middle East as well as North Africa show equally high numbers of obese children (Lim et al., 2012). An overall survey by Musaiger (2011) refers to alarming rates in the Middle East, fluctuating locally. Prevalence of overweight or obesity in scholars differs between seven and forty-five percent, with a great impact on further health development. Children with weight problems turn into overweight adults (Freedman et al., 2005) with multiple comorbidities such as diabetes mellitus typ 2, cardiovascular diseases or problems of the muscosceletal system (Zwiauer et al., 2007). A meta-analysis by Lenz, Richter and Mühlhauser (2009) predicted a 20% rise of mortality in obese adults, increasing to 200 percent in severe cases. The Institute for Health Metrics and Evaluation in Seattle stated that overweight and obesity is responsible for 3,4 millions of fatalities (Lim et al., 2012). Changes in lifestyle and the constant availability of food plus the increase in portion sizes, sugary drinks and the vast range of convenience products, as well as their effective presentation are cited as reasons for increased obesity prevalence (Te Morenga, Mallard & Mann, 2012). Besides the changes in nutritional habits, also biological, psychological and social determinants are discussed as relevant risk factors. Scientific research determines 50% of the difference in BMI in a population by genetic predisposition (Maffeis, 2000). Individual and alterable factors are nutritional habits and frequency of physical activity. A high level of media consumption and lack of sleep are additional risk factors for the development of weight problems.

Hense et al. (2011) showed that children with less than nine hours of sleep have twice the risk of being overweight than children with eleven hours of sleep. Reduced sleep duration is associated with intensive use of media. Children who have their own TV and/or computer in their room were more affected by a lack of sleep (Van den Bulck, 2004), moved less, prefered fatty and sugar rich foods and had a higher obesity risk (Relsch & Gwozdz, 2010).

Further risk factors can be seen in low social status and income as well as migrational background (Kurth & Schaffrath Rosario, 2010). Lange, Plachta-Danielzik, Landsberg und Müller (2010) indicated that children from migrant families had a doubled risk for overweight in comparison to German children. Underprivileged upbringing including socially disadvantaged housing and low educational standards elevate the health risk of children and adolescents considerably (Gordon-Larsen, Nelson, Page & Popkin, 2006; Pigeot, Buck, Herrmann, & Ahrens, 2010). Last but not least children are affected by societal messages suggesting that “thin” is “good” and “fat” is

"bad". Dissatisfaction with one´s body is a substantial and upholding factor in obesity (Jacobi, Hayward, de Zwaan, Kraemer & Agras, 2004). Body dissatisfaction is defined as subjective negative evaluation of one`s physical appearance (Presnell, Bearman & Stice, 2004).

Many adolescent girls express dissatisfaction with their bodies. Every other girl aged 11 to 17 years has already engaged in weight-loss behaviors (McCabe & Riccardelli, 2003) and 40% of the underweight and normal weight girls feel too fat (Van Hoeken, Seidell & Hoek, 2005). In the United Arab Emirates about two thirds of 13 to 18 year old girls want to be thinner (Eapen, Mabrouk & Bin-Othman, 2006). Several studies show that body dissatisfaction and weight-loss behaviour is already present in preadolescent children (Dittmar, Halliwell & Ive, 2006; Ricciardelli, McCabe, Holt & Finemore, 2003; Tremblay, Lovsin, Zecevic & Lariviére, 2011). Starting at the age of four to six years children compare with each other. Whereas preschool kids worry mainly about hair-style and clothing, those aged six and older already focus on weight related problems, thus comparing to adults (Jones, 2011) in regard to body image and fear of overweight (Hayes & Tantleff-Dunn, 2010). Already preschool children defined their idea of an ideal figure as very slim and several studies confirm that most adolescent girls between the age of 10 and 14 had already tried to reduce weight (McVey, Tweed & Blackmore, 2004). Overall perceptions and worries about appearance differ in regard to gender, girls want to be slender and pretty, boys worry about muscular mass and physical strength (Tiggemann, 2011).

Against the background of rising numbers in the prevalence of eating disorders and health risks related to body weight, this study addresses the very young in our society. The aim of our investigation was the systematic inspection of parental-child interaction and attitudes regarding nutritional habits and body weight perceptions considering the influence of biological and social factors, thus providing data regarding body satisfaction, weight, nutritional and recreational habits in three to six year old children and their parents in Carinthia (Austria).

Methods

Study population

To recruit participants, six nursery schools in a rural area of Austria with approximately 60.000 inhabitants were randomly selected and sampled on the basis of divergent socio-economic status. All children (N = 526) and their parents were invited to participate in the study. Informed consent was obtained from a parent of each child.

Measures: Children

In a medical checkup the children were weighed and measured, the 90th percentile was used to define overweight and the 97th percentile to define obesity (Kromeyer-Hauschild et al., 2001).

a) *Food preferences and recreational habits*

A trained interviewer asked the children about their nutritional preferences. Based on the "food pyramid" (http://bmg.gv.at/cms/home/attachments/4/5/1/CH1048/CMS1212664711223/richtige_ernaehrung_fuer_mein_kind.pdf) children were shown five images to help them answer what they preferred to eat. Response options were coded numerically.

Then the children got four cards with recreational opportunities (sports, consuming activities, creative games, social interaction) and were asked to order them according to their likeability and they were asked some questions about media consumption (television viewing time, eating while watching television, having a television in their own room, playing video games).

b) *Body satisfaction and dieting awareness*

Body satisfaction was assessed using the Figures Rating Scale (Collins, 1991) consisting of seven female/male images (see fig. 1) ranging from underweight (1) to obese (7). Children were asked to identify the image that looked most like them as well as (2) their ideal figure.

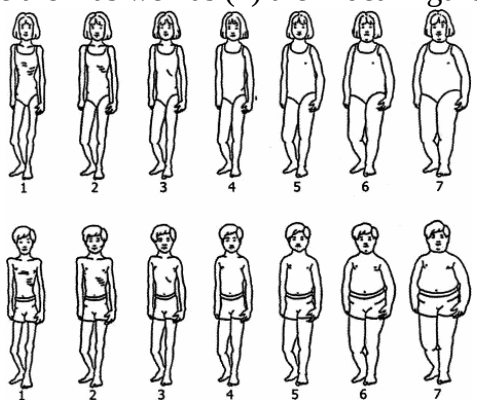

Figure 1: Figures Rating Scale (Collins, 1991)

The difference between "ideal" and „figure most similar to them" was calculated as body satisfaction with a range from -6 to +6. Negative scores indicated that the child wanted to be thinner. No difference indicated satisfaction with one´s body size.

With a fictional story of Anna/Anton we wanted to assess the children´s dietary awareness: „One year ago Anna/Anton looked like image 3, today she/he looks like image 6." What do you think (1) happened to Anna/Anton and (2) what would you do, if this happened to you?

Parental questionnaire

The parental questionnaire included social parameters (highest educational level, nationality), biological factors (age, height and weight of mother and father) and questions about their child´s television and sleeping habits. Parents' weight category was assigned according to the BMI definitions (WHO, 2000).

Based on the „food pyramid", we developed a Food Frequency Questionnaire with 15 edibles. The respondents were asked to rate them using a seven-point rating scale ranging from "never" to "several times a day".

Physical activity behavior was assessed with the International Physical Activity Questionnaire (IPAQ http://www.ipaq.ki.se/ipaq.htm). The amount of strenuous (e.g., aerobics, heavy lift) and moderate activities (e.g., cycling at the ordinary rate) as well as everyday movement (e.g., walking, household chores) and the time spent sitting (e.g., while watching TV or reading) had to be documented in days per week and minutes per day.

Statistical Analysis

Quantitative data were analyzed using SPSS 20. Open-ended questions were transcribed and analyzed using qualitative content analysis (Patton, 2002). Missing values in the questionnaires partly resulted in smaller sample sizes.

Results

Study population

The present study included 319 children (149 girls and 170 boys) with a mean age of 4.85 ± 0.92 years. Out of the 319 children 202 (63%) were weighed and measured by a physician. On average, the sample was at the 50th percentile (M = 50.03, SD = 27.09), so the majority of children (85%) had normal weight, 5.4% were overweight and 3.5% obese. Among the 257 participating parents (225 mothers and 32 fathers) 27% mothers and half of the fathers were classified as overweight and another 9% of the mothers and 16% of the fathers as obese. Consistent with previous research we found slight significant associations between children and their mothers ($r = .242$, $p = .002$) as well as their fathers ($r = .181$, $p = .031$) weight status. 82% of parents came from Austria (n = 209), 2% from Germany (n = 5) and 16% from other countries (n = 40). The major socioeconomic characteristics of the sample included having an income between 20.000 and 30.000 (33%) Euros per year, and working mothers (56%). Almost half of the parents had a high school diploma or higher education. Socioeconomic status was associated with children's weight ($r = -.160$, $p = .047$).

Food preferences and habits

We found that 61% of children preferred sugary foods, followed by fatty foods (18%). Vitamin-rich food (7%), protein-containing foods (6%, n = 20) and carbohydrate-rich food (4%, n = 14) were less popular. Boys rated fatty foods more frequently as „very good" (χ^2 = 19.944, df = 4, p = .001). 76% of parents preferred foods with a high vitamin content (n = 162). No one mentioned a preference for fatty foods. Parents with higher education preferred vitamin-rich foods. Parents with lower education selected edibles rich in carbohydrates, sugary and protein-rich foods more often (χ^2 = 8.332, df = 3, p = .040).

Recreational and physical activity

One third of the children preferred sports (34%, n = 109) or consuming activities (31%, n = 98). A quarter favored creative games (n = 79) and only 6% primarily chose the social interaction (n = 20). We found correlations between food preferences of vitamins and preference for sports (r = .126, p = .029), and between food preferences for sugar and consuming activities (r = .113, p = .050). The results of the IPAQ showed that 30% of parents (n = 76) could be categorized as low, 37% (n = 95) as middle and 33% (n = 85) as high physically active. Parents from Austria were more active than parents from other nationalities.

Television viewing

Parents estimated viewing time per day was about 82 ± 60 minutes. There was a positive correlation between time spent watching TV and BMI of mothers (r = .192, p = .002) and fathers (r = .142, p = .035). In families with lower socioeconomic background, children spent significantly more time with television viewing (χ^2 = 39.106, df = 16, p = .001). Almost half of the children reported that they played computer games (53%).

One third of the children (30%, n = 88) in the present study had a TV in their room, which led to a higher consumption at noon (χ^2 = 13.863, df = 1, p <.001) and in the morning (χ^2 = 36.035, df = 1, p <.001).

Sleep duration

The average sleep duration of children was 11 ± 1hour (χ^2 = 25.264, df = 14, p = .032) and children with less than 10 hours of sleep, played with computers or video games more often (χ^2 = 7.534, df = 1, p = .006).

Body satisfaction and dieting awareness

Our results show that only 22% of preschool children are satisfied with their bodies. 43% chose a thinner and 36% a fatter ideal figure.

Younger children ($\chi^2 = 31.917$, df = 12, p = .001) and boys often chose a more corpulent figure as ideal ($\chi^2 = 13.418$, df = 6, p = .037).

Dieting awareness

More than half of the children (60%) detected a weight gain comparing a normal to an overweight figure. When asked what they would do if this would happen to them, 27% of our participants mentioned an adequate intervention (e.g., eat less, exercise more), 21% did not know what to do and 12% cited an inadequate intervention (e.g., having a baby, go to the toilet, cut open the stomach). Younger children less often recognized the cause of weight gain or named an adequate intervention ($\chi^2 = 70.938$, df = 24, p < .001).

Discussion

Overweight has become epidemic. Results from descriptive analyses revealed that more than one third of the mothers and more than half of the fathers were overweight or obese. The proportion of children who were overweight or obese was considerably lower, but similar to comparable studies (e.g., Zwiauer et al., 2007). Almost every tenth child in the present study was overweight or obese. The study participation as a whole can be described as good, although we only reached 12% of the fathers. Mothers can be described as interested, engaged and committed. We can only speculate about the father's minor participation. We cannot give any details whether they had less interest in the subject, the questionnaires were referred to them at all or if they were not even present in their families.

The findings of this study are broadly consistent with other studies that examined slight significant associations between children and mothers as well as fathers weight status.

We found that more than half of the children preferred sugary foods, followed by fatty foods, in contrast, two-thirds of the parents preferred foods with a high vitamin content and no one mentioned a preference for fatty foods. In view of the high obesity rates, this is surprising. Maybe we received socially desirable answers. The same applies to the information on physical activity. According to the results of the IPAQ one-third of the parents can be classified as hardly active, another third as moderate and the last third as physically high active.

Our analysis highlights that sporty children prefer vitamin-rich foods whereas children preferring consuming activities liked sugary foods. This result can be seen in close connection with the media consumption. For our young sample TV is already of high interrest, TV is part of everyday life. Almost a third of our participants had their own TV in their room. These children watched more TV and it can be assumed that these children also

viewed large numbers of food commercials. Here, the socioeconomic background also seemed to play a significant role. The vicious circle continued to work on: Children with a high level of media consumption, were affected by lack of sleep and preferred sugar rich foods. These results are supported by previous research findings (e.g., Hense et al., 2011; Relsch & Gwozdz, 2010). For three to six-year old children, body dissatisfaction appeared to be already common. Only a quarter of our participants were satisfied with their bodies, almost half of them expressed a desire to be thinner, this was obvious especially for the older girls in our study. Body dissatisfaction may have a negative impact on children´s physical and mental health and is often associated with weight loss strategies and eating disturbances (Attie & Brooks-Gunn, 1989).

There are some limitations to the study: this study was conducted in a small rural area in Carinthia and therefore the results are not representative for the Austrian population. We also found evidence of risk factors but our cross-sectional data does not allow conclusions on intra-individual changes and differences in the developmental course.

Another potential limitation relates to measuring parents food preferences and physical activities since the answers of children and their parents did not always correspond.

Conclusion

The present results have indicated that individual factors like sleep duration and media consumption, as well as familial variables play an important role in childhood obesity in a nonclinical sample. There is a need of longitudinal studies in preadolescent boys and girls to get a broader insight in relevant risk factors. A slender body is the ideal of female beauty and piles pressure on young people in western as well as in oriental countries. Future studies should focus on psychological factors like self-esteem and attachment theories. Finally, there is a need for well-conducted intervention programs to improve body satisfaction of preadolescent children and motivate parents for healthy way of livings.

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