

## Treatment-Seeking Overweight Preschoolers Have Reduced Health-Related Quality of Life Compared With Nonclinical Preschoolers

Kuhl ES, Rausch JR, Varni JW, Stark LJ. Impaired health-related quality of life in preschoolers with obesity. *J Pediatr Psychol* 2012;37:1148–56.

### Study Overview

**Objective.** To determine whether there were differences in health-related quality of life (HRQOL) between treatment-seeking preschoolers with obesity and a nonclinical comparison sample.

**Design.** Case-control study.

**Setting and participants.** The “treatment-seeking group” comprised 60 Midwestern families who were part of a larger randomized trial of obesity treatments; their baseline data were used in this study. Eligibility criteria for the randomized trial included (1) the child being between the ages of 2 and 5 with age- and gender-adjusted BMI  $\geq$  95th percentile but  $<$  100% over ideal body weight; (2) English-speaking families; and (3) at least 1 parent who was overweight (BMI  $>$  25). The treatment-seeking sample was recruited from primarily suburban pediatric practices and were mostly Caucasian preschoolers (82%) living in households with college-educated parents (52%) who were married (88%) and had an annual family income higher than \$75,000 (63%); all of the participating caregivers were mothers, of which 77% were overweight. For the comparison group, previously published data collected during field testing and validation of the Pediatric Quality of Life Inventory (PedsQL), the health-related QOL measure used in this study, were used. This comparison sample of 457 children between the ages of 2 and 5 were randomly matched to the treatment-seeking obese sample by age, gender, and race/ethnicity.

**Main outcome measure.** HRQOL as reported by a caregiver using the PedsQL. This 23-item inventory uses a 5-point Likert scale. Scaled scores range from 0 to 100, with higher scores indicating better HRQOL [1]. The PedsQL includes 3 summary scores: (1) total scale score; (2) physical health summary score; and (3) psychoso-

cial health summary score. Additionally, it includes 4 multidimensional scale scores: (1) physical functioning; (2) emotional functioning; (3) social functioning; and (4) psychosocial functioning.

**Results.** Treatment-seeking obese preschoolers had a mean z-BMI of 2.37 (SD = 0.58) and a mean BMI percentile of 98.39 (SM = 1.47). Parents in the treatment-seeking obese sample reported significantly lower total HRQOL for their preschooler than those in the nonclinical comparison sample ( $P = 0.001$ ; means scores = 83.01 and 88.52, respectively). This between-group difference score exceeded the cut-off for what is considered a minimally clinically important difference score [2]. Treatment-seeking parents also reported significantly lower scores than controls on physical health ( $P = 0.03$ ; mean scores = 86.46 and 91.08, respectively) and psychosocial health ( $P = 0.001$ ; mean scores = 80.84 and 86.86, respectively). Within the psychosocial functioning domain, parents in the treatment-seeking obese sample reported significantly lower scores for both emotional functioning ( $P < 0.001$ ; mean scores = 75.00 and 82.79, respectively) and social functioning ( $P < 0.004$ ; mean scores = 80.84 and 90.47, respectively); these between group differences did not reach minimally clinically important differences. There was no significant difference between groups on school functioning ( $P < 0.25$ ).

Exploratory item-level analyses revealed that relative to the nonclinical comparison sample, parents in the treatment-seeking obese sample reported that their preschooler had significantly lower energy levels and significantly more difficulty walking, running, participating in sports and exercise, and lifting heavy objects. Further, the preschoolers in the treatment-seeking sample were described as having significantly higher levels of worry, greater difficulties sleeping, and greater difficulty engaging in activities. Parents in the

treatment-seeking obese sample also reported that their preschooler experienced significantly greater teasing than their peers in the nonclinical comparison sample.

**Conclusions.** Study results indicate that parents in treatment-seeking families perceive obese preschoolers as having lower HRQOL. The researchers suggest that discussing HRQOL may be an effective strategy for health care professionals to raise the subject of weight with parents of overweight preschool children.

### Commentary

Studies document reduced QOL in obese school-aged children and adolescents; there is a dearth of research looking at this in preschool children. This study is significant in that it is among the first to explore this important topic in preschoolers. Kuhl et al found that parents of obese preschoolers perceived their child as having significantly lower HRQOL than the control sample, whose mean BMI was unknown but presumed to be representative of the population based on averages at that time. This is consistent with previous research showing that parents of obese preschoolers report higher rates of physical limitations [3]. It is also consistent with findings from studies with older children. For example, Hughes and colleagues matched obese children ages 5 to 11 to non-obese controls on age, ethnicity and socioeconomic status, and found that obese children had impaired quality of life, especially when reported by a parent [4]. In a review of school-aged children's and adolescents' HRQOL and weight status, Tsiros et al found an inverse relationship between BMI and HRQOL, and that impairments in both physical and social functioning were reported frequently [5].

Obesity is a major public health concern in the United States. In 2009–2010, 16.9% of children between the ages of 2 and 19 were obese, with 12.1% of preschool aged children meeting criteria for obesity [6]. Obesity during preschool years has immediate negative health and psychological consequences. It has been linked to cardiovascular problems [7] and lower gross motor skills levels [8]. With respect to psychosocial development, children as young as 3 ascribe more negative adjectives to overweight figures, and they prefer as playmates normal weight and underweight figures over overweight figures [9]. Teachers pay more attention to athletic children [10]. Long-term, there is substantial evidence linking childhood obesity and

adult obesity [11]. Moreover, lasting patterns of diet and physical activity are established during childhood [12], making the preschool years an optimal time to intervene so that healthy patterns can be established. Raising awareness about the impact of weight on HRQOL could be a way for health care providers to engage families in obesity treatments.

This study has several limitations. The lower HRQOL scores reported by parents in the sample may reflect the fact that parents who agree to enroll in a treatment study addressing their child's weight are more likely to be aware of psychosocial and health problems in their overweight child. Moreover, the nonclinical comparison sample is not an ideal control. The 2 samples were recruited almost 10 years apart and the differences in HRQOL may reflect increasing public awareness on the negative impact of obesity during childhood. The fact that the treatment-seeking group was slightly older may have impacted the scores. Further, the groups could not be matched on socioeconomic status, and we do not know the BMI of the comparison group.

As the researchers aptly point out, the PedsQL is a general measure of HRQOL in preschoolers, and as such it is not possible to determine whether the caregivers associated the lower HRQOL scores to their child's weight. Future research utilizing obesity-specific HRQOL measures adapted for this age-group is needed.

The majority of treatment-seeking participants were Caucasian and middle-class, thus limiting the generalizability of the study. Minority children and children living in households with low socioeconomic status are at increased risk for obesity [13], with Hispanic preschool children having an increased risk of being overweight compared with white and black preschoolers [14,15]. These factors also have been shown to play a role in the diet and physical activity levels of children [16]. It is, therefore, important to replicate these findings with preschool children of diverse ethnic, cultural, and economic backgrounds. Parental perceptions of child's weight and quality of life may also differ among caregivers of different cultural and ethnic backgrounds.

This study would have benefited from exploring if there were significant differences in the response patterns of mothers who were overweight compared with those who were not. This is important to consider because children internalize parental attitudes and be-

haviors towards food [16]. It is plausible that overweight mothers may have different perceptions about their child's weight and how it affects the child's HRQOL compared with normal weight mothers.

**Applications for Clinical Practice**

Pediatricians can play an important role in the weight management of preschoolers. However, this has proven difficult, as parents often misperceive their child's weight status [17,18], or they may not see overweight as a problem; thus, clinicians must first help parents perceive the child's weight as being problematic before engaging them in obesity treatment. Linking poor HRQOL to weight might be a useful way to address excessive weight with caregivers rather than relying exclusively on growth curves and anthropometric data. Understanding which specific behaviors reduce HRQOL in overweight preschoolers can help parents understand the short-term effects of obesity during the preschool years, which may in turn increase motivation to manage child's weight.

In the present study, the children in the treatment-seeking obese sample were described as having significantly higher levels of worry, having greater difficulty engaging in activities, and being teased more than their non-overweight peers, thus underscoring the importance of addressing the psychosocial impact of obesity on preschool children. Working in collaboration with mental health experts may help pediatricians and nurses identify psychosocial challenges faced by children, and incorporate this information into their treatment approaches. Should the psychosocial challenges become significant and interfere with obesity treatment or impede the child's development, medical providers should consider referring the family to a mental health provider.

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