

# Does Parental Warmth and Responsiveness Moderate the Associations Between Parenting Practices and Children's Health-related Behaviors?

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## ABSTRACT

**Objective:** To determine whether a higher number of parenting practices, such as those concerning meals, bedtime, and limited screen time, is associated with children's health behaviors. In addition, to determine whether perceived parental warmth and responsiveness toward the child strengthens (moderates) the associations between parenting practices and health behaviors.

**Design:** Cross-sectional study.

**Setting:** School-based survey in which children completed questionnaires at school, and parents at home.

**Participants:** A total of 805 child-parent dyads were used in analyses.

**Main Outcome Measures:** Intake of nutrient-dense and energy-rich foods, meal frequency per day, sleep duration, and screen time.

**Analysis:** Linear and logistic regression analyses. Moderation was tested by adding the interaction term of parenting practices and parental warmth/responsiveness to the models. When moderation occurred, stratified analyses were conducted.

**Results:** A higher number of parenting practices was associated with more favorable health behaviors. Stronger associations between parenting practices and nutrient-dense food intake and meal frequency were found when children perceived high parental warmth/responsiveness. Stronger associations between parenting practices and energy-rich food intake and screen time were found when children perceived low parental warmth/responsiveness.

**Conclusions and Implications:** Parental warmth/responsiveness seems to strengthen the associations between parenting practices and favorable health behaviors. This knowledge could be used in family-focused obesity interventions.

**Key Words:** child, parent, health behaviors, food, screen time, meal, sleep (*J Nutr Educ Behav.* 2013;45:602-610.)

## INTRODUCTION

Strong empirical evidence has suggested that unhealthy childhood behaviors such as eating habits, screen time, and sleep duration tend to persist into adulthood and are risk factors for overweight and obesity.<sup>1-5</sup> Hence, this topic is of urgent public health concern. In the socio-ecological model of Davison and Birch,<sup>6</sup> childhood overweight and obesity are determined by children's eating habits, physical activity, and sedentary behavior, which are in turn partly deter-

mined by parenting practices and parenting style. Parenting practice has been defined as a specific behavior through which parents perform their parental duties; in other words, parenting practices are behavioral strategies by which parents try to socialize their child.<sup>7</sup> Parenting practices are situation and context dependent: for example, monitoring a child's television (TV) viewing or applying rules about eating.<sup>7</sup> Parenting style refers to the type of interaction between the parent and the child.<sup>7</sup> Two dimensions of parenting style are usually

assessed: the degree of warmth/responsiveness and degree of control/demandingness.<sup>8</sup> Previous studies have generally found associations between parenting style and children's health behaviors.<sup>9-14</sup> In most studies, an authoritative style, high in warmth/responsiveness and control/demandingness, has been associated with positive health behavior outcomes.<sup>9,11,12</sup> Darling and Steinberg<sup>7</sup> suggested in a contextual model of parenting style that the association between parenting practices and children's health behaviors is moderated by parenting style.

Several studies have examined associations between health behavior-related parenting practices and children's health behaviors. Food-related parenting practices such as having food rules, parents cutting up fruit and vegetables for their children, and encouraging children to eat fruit and vegetables have been associated

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with frequent intake of fruit and vegetables and with eating breakfast.<sup>13,15-17</sup> Food-related pressure, parents catering to children's demands, and permissiveness have predicted a higher intake of sweets and soft drinks among 11-year-olds,<sup>13</sup> whereas more restrictive parenting food practices has been associated with a lower consumption of soft drinks among schoolchildren and adolescents.<sup>18-20</sup> Associations between parenting practices and screen time have also been found.<sup>21-24</sup> Rules about not watching TV during mealtimes and stricter rules for watching TV in general have been associated with less time watching TV.<sup>21,23,24</sup> In contrast, having fewer rules for screen time has been associated with more TV viewing and more time playing computer games.<sup>22</sup> In addition, having family rules such as making one's own bed has been associated with earlier bedtime, longer duration of sleep, and, among girls, a decreased night-to-night variation in sleep duration.<sup>25</sup>

Childhood health behaviors have been reported as being clustered.<sup>26-29</sup> According to Kremers et al,<sup>27,29</sup> one can expect that the determinants of the behaviors can also be clustered. An example of this was reported by Pearson et al,<sup>30</sup> who found that parenting practices such as parental modeling for physical activity were associated with daughters' fruit and vegetable intake. Parents also may use more than 1 practice when carrying out their parental duties regarding health behaviors. Therefore, the association between parenting practices concerning health behaviors and children's separate health behaviors might be stronger in families where the reported number of parenting practices is higher. Whereas Pearson et al included only girls in their study about associations between physical activity parenting practices and fruit and vegetable intake, Spilsbury et al<sup>25</sup> included boys and girls, and reported unexplained gender differences in the associations between family rules and sleep habits. Hence, it is possible that the gender of the child may moderate associations between parenting practices and health behaviors; however, additional research is needed to fill this gap in the literature.

The moderating role of parenting style, as proposed by Darling and Steinberg,<sup>7</sup> in the associations between health behavior parenting practices and children's health behaviors, has been shown in a small number of studies.<sup>19,31</sup> For example, a permissive style high in warmth and low in control was found to strengthen associations between parental monitoring of physical activity/parental reinforcement of physical activity and children's actual physical activity.<sup>31</sup> As well, parenting style, defined as being moderately strict and highly involved, was found to strengthen the association between parenting practices and lower soft drink intake among adolescents.<sup>19</sup> To the authors' knowledge, few other studies have examined the role of parental warmth within the association between parenting practices and child health behaviors. Addressing the gap would facilitate the promotion of better health behaviors in families and give practical guidance and help, which can be used when preventing childhood obesity in the health care centers.

The aim of this study was to examine whether having a higher number of positive parenting practices was associated with more favorable health behaviors among children. In addition, this study examined whether the association between parenting practices and children's health behaviors was moderated by gender and perceived parental warmth and responsiveness. The hypotheses were as follows: (1) having a higher number of positive parenting practices increases the probability of children's-favorable health behaviors, and (2) the association between positive parenting practices and children's health behaviors is stronger among children who concurrently perceive high parental warmth and responsiveness compared with those who perceive low parental warmth and responsiveness.

## METHODS

### Setting

This cross-sectional study was part of the Hälsoverkstaden project, conducted by the Folkhälsan Research Center in Helsinki, Finland, and focused on the health behaviors of school-

children aged 10–11 years. Of 48 invited Swedish-speaking schools in southern Finland, 31 participated. The schools' principals made the decision to partake in the study. In Finland, almost all schools are municipality schools; therefore, the participating schools did not differ from nonparticipating schools with respect to socioeconomic status. Teachers in the participating schools received a letter about the study, and based on the information in the letter, they informed the children about the study. The children then brought home an information sheet and a consent form. One of the parents and the child gave consent to participate, after which the teachers returned the signed forms to the research group. Both parents and children were informed that it was voluntary to participate in the study, that they could interrupt it at any time, and that the participants were not compensated for the participation. The consenting children completed the study questionnaire in class, where research staff attended. The consenting children then brought the parental questionnaire home from school. The questionnaire was completed and returned by mail directly to the research group. The ethical committee of the Department of Public Health, Faculty of Medicine, University of Helsinki, approved the study in spring, 2006.

### Participants

At baseline assessment in autumn, 2006, 1,268 children aged 10–11 years (response rate 79%) completed the study questionnaire. A total of 618 girls and 650 boys participated; 612 participants were in grade 4 and 656 were in grade 5. A total of 816 parents (64%), consisting of 677 mothers, 137 fathers, and 2 other caregivers, returned a completed parent's questionnaire. There were 805 matched parent-child pairs in the analyses.

### Assessments

*Children's health behaviors.* Children's health behaviors were determined in the questionnaire completed by the children. The questions about screen time, bedtime, wake-up time, meal pattern, and food intake

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