

# Associated Demographic Factors of Instrumental and Emotional Feeding in Parents of Hong Kong Children

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## ARTICLE INFORMATION

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## ABSTRACT

**Background** Instrumental and emotional feeding have been associated with obesogenic dietary behaviors and obesity in children. Therefore, identifying parents who are more likely to use detrimental feeding styles may be helpful for tailoring interventions.

**Objective** This study examines the demographic variation of instrumental and emotional feeding by using a sample of the Hong Kong population.

**Design** A cross-sectional research is presented. Instrumental and emotional feeding styles were assessed.

**Participants** A total of 3,742 Hong Kong parents from 27 kindergartens, with children aged 2 to 7 years old, were enrolled in this study.

**Main outcome measures** Instrumental and emotional feeding styles were assessed by a validated Parental Feeding Style Questionnaire.

**Statistical analysis** Differences among the demographic characteristics in parental feeding styles were compared by independent *t* test or analysis of variance. Multiple linear regressions were performed to determine the associated demographic factors.

**Results** A greater tendency to adopt instrumental feeding was associated with younger children ( $\beta = -.07$ ), feeding a daughter ( $\beta = .05$ ), and a mother having a full-time job ( $\beta = .10$ ). By contrast, a greater tendency to adopt emotional feeding was associated with younger children ( $\beta = -.07$ ), feeding a daughter ( $\beta = .06$ ), a mother having a full-time job ( $\beta = .16$ ), or a lower parental education level ( $\beta = -.11$ ).

**Conclusions** Parents with full-time jobs, lower education levels, or who were nurturing a younger child may be more likely to use unhealthy feeding styles. Researchers should consider developing intervention strategies that focus on decreasing emotional and instrumental feeding styles for full-time employed or less-educated parents of younger children, particularly daughters.

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THE PREVALENCE OF OBESITY AMONG CHILDREN IN China has nearly doubled from 4.1% in 2000 to 8.1% in 2010.<sup>1</sup> A similar trend has been observed in Hong Kong. According to the Department of Health, Hong Kong Special Administrative Region Government, the prevalence of childhood obesity among primary students (equivalent to first grade in the US education system) increased from 11.3% in the 1996/1997 school year to 15.3% in the 2010/2011 school year.<sup>2</sup> This report suggests that childhood obesity may become an increasing public health burden.

Childhood obesity exerts both immediate and long-term effects on health and well-being. In the short term, obesity in youth presents an increased risk for cardiovascular risk factors, such as high cholesterol and high blood pressure.<sup>3</sup> Obesity in childhood and adolescence can also be related to bone and joint problems, sleep apnea, and social and psychological problems, such as stigmatization and poor self-esteem.<sup>4-6</sup> In the long term, obese children and adolescents are more likely to be obese during adulthood.<sup>7</sup> This can be

associated with considerable risk for various adult health problems, such as heart diseases, type 2 diabetes, stroke, osteoarthritis,<sup>6</sup> and cancers, including those of the breast, colon, and pancreas.<sup>8</sup> Therefore, prevention of various obesity-related chronic diseases in later stages of life should begin during early childhood.

Considering the limited autonomy and independence of children, parents influence children's diet by selecting foods for them and constructing their social environment.<sup>9</sup> Parental feeding styles refer to the specific parenting techniques or behaviors that influence children's food intake.<sup>10</sup> These behaviors help explain how parents can influence their children's diet and body weight.

Every parental feeding style is a multidimensional behavior. A recent systematic review has identified 71 instruments developed to measure parenting feeding styles, which can be categorized into physical, social, cultural, and political aspects.<sup>11</sup> Among these feeding styles, instrumental feeding and emotional feeding have been related to unhealthy dietary

patterns and excessive weight gain in preschoolers. Instrumental feeding refers to feeding children in response to their behavior, such as rewarding children when they behave well or withdrawing their favorite food when they misbehave. Emotional feeding refers to feeding children in response to their emotions, such as comforting them with food when they feel upset, bored, or worried.<sup>12</sup>

Previous research has identified a relationship between parental feeding style and unhealthy eating behavior of children. From research conducted among 135 Dutch children aged 6 to 7 years old, instrumental and emotional feeding styles were positively associated with children's snack consumption.<sup>13</sup> Although instrumental and emotional feeding styles were not associated with child weight,<sup>14</sup> these strategies were associated with increased responsiveness of children to food (willingness to eat food provided by parents) among 439 UK preschoolers (aged 3 to 5 years old).<sup>15</sup> According to previously published findings from the current study sample, instrumental and emotional feeding styles are associated with decreased fruit and vegetable consumption, but an increased intake of high-energy-dense foods.<sup>16</sup> Among 323 Australian children (mean age=2.03 years), instrumental feeding practices predicted high body mass index *z* scores, whereas emotional feeding was associated with obesogenic eating behavior, such as eating in the absence of hunger and rapid eating.<sup>17</sup> Compared with healthy foods, such as fruits and vegetables, unhealthy food choices, including snacks, can present an appealing smell and taste. Parents might choose unhealthy food items to reward children's good behavior or relieve their emotions. Using unhealthy foods to reward behavior can influence children's food preferences and thereby reinforce obesogenic eating behaviors.<sup>18</sup>

Given the adverse effects of instrumental and emotional feeding, identifying high-risk groups that use detrimental styles when feeding children may be helpful for developing targeted strategies to counsel parents about more positive feeding styles. Previous research has demonstrated subgroup differences in the frequency of using instrumental and emotional feeding styles. A study conducted in the United Kingdom, which reported a lower mean score for emotional feeding by parents with lower education (210 parents of children aged 4 to 11 years old), comparatively evaluated the socioeconomically highest vs lowest districts within the same city, which differed substantially in terms of unemployment rate (49% vs 22.8%).<sup>19</sup> However, for another similar study in the United Kingdom, better-educated mothers yielded lower scores on emotional feeding (180 families of children aged 4 years old).<sup>20</sup> In both studies, different emotional feeding means (2.0 vs 1.5) were reported for parents with lower levels of education.<sup>19,20</sup> The results not only suggest that both parental education and employment need to be investigated as demographic variables probably associated with parents' emotional feeding of children, but these findings also reveal that data in the same country can differ. In The Netherlands, a similar survey was conducted among 359 mothers of children aged 4 to 12 years old. The use of instrumental and emotional feeding styles, as assessed by a dichotomous scale, was associated with younger-aged mothers and intermediate socioeconomic position.<sup>21</sup> On the basis of these studies, the associated factors of parental feeding styles differed between or within

countries. Apart from cultural differences, the discrepancies might originate from the relatively small sample sizes because all of the studies involved <500 parents.

Although research on how instrumental and emotional feeding styles vary with demographic characteristics has been conducted in Western populations, comparable research in the Chinese population is lacking. Therefore, the present study examines the association between demographic factors and instrumental and emotional feeding styles in Hong Kong children aged 2 to 7 years old.

## MATERIALS AND METHODS

In December 2010, a cross-sectional survey was conducted among Hong Kong children who attended kindergarten (available for children aged 2 to 5 years old). A total of 27 of 100 invited Hong Kong kindergartens who joined in a previous health-promotion school project (<http://www.cuhk.edu.hk/med/hep/>) participated in the study. Self-administered questionnaires were distributed among the parents or guardians of children attending the participating kindergartens. For cases in which more than one parent/guardian was available, the parent/guardian who was the most involved in child feeding was the one who participated. All participants signed a consent form that was included as part of the questionnaire. Completed questionnaires were collected within 2 weeks of distribution.

Instrumental feeding (four items) and emotional feeding (five items) were assessed using the Parental Feeding Style Questionnaire, widely is used in various countries.<sup>19,20,22,23</sup> The Parental Feeding Style Questionnaire has been translated into Chinese and has been validated as described previously.<sup>24</sup> Cronbach's  $\alpha$  for instrumental feeding and emotional feeding were .63 and .81, respectively, whereas the overall Cronbach's  $\alpha$  for all the items was .75.<sup>24</sup> The responses for each item ranged from 1 (never) to 5 (always). A mean score was obtained from each subscale (ranging from 1 to 5). Higher scores reflect greater instrumental or emotional feeding. In the same questionnaire, demographic variables were acquired, including the age and sex of the children and the working status (full-time/part-time, unemployed, or retired) and educational level of the parents (college diploma/degree or higher vs secondary school or below); these variables have been commonly assessed in previous studies.<sup>19-21</sup> Respondents who answered the questionnaire also needed to report their relationship to the child, considering that parenting styles may differ according to the types of caregivers. Only participants who provided complete data were included in the analysis.

Descriptive statistics were used to summarize the demographic variables, and mean values and standard deviations of instrumental and emotional feeding scores were computed. The between-group difference for each demographic variable was compared by either independent *t* test or analysis of variance. The difference according to demographic characteristics in the subscale scores with *P* value <0.1 was entered into multiple linear regressions. Regression coefficient ( $\beta$ ) and 95% CI were calculated. An  $\epsilon^2$  value and  $R^2$  value were also calculated to examine the effect sizes of individual demographic predictors and the overall regression model.<sup>25</sup> All analyses were conducted using SPSS.<sup>26</sup> The ethical approval of this study was obtained from the Joint

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