Use of chopsticks in Chinese children

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Accepted for publication 21 November 2001

Abstract

Objective There has been no study on the developmental stage of acquiring the skill of using chopsticks, which is a common eating tool of the Orientals. We aimed to obtain a developmental profile for achieving the skills of chopsticks manipulation in Chinese children and to assess the correlation between chopsticks manipulation and the level of achieving independence in ‘eating’ item in the Functional Independence Measure of children (WeeFIM). We also studied the relationship between demographic and environmental factors and the age of achieving chopstick manipulation.

Methods Direct interview with the mothers of 445 non-disabled children who were randomly selected from the community. A chopsticks score (CS) of 1 was defined as children who could use chopsticks to finish more than half the meal, and a CS of 0 as failure to do so.

Results The mean age of achieving a CS of 1 was 4.6 years. At 6.7 years, all these children achieved this skill. There was a significant relationship between age of achieving the skills of chopsticks and the level of attaining independence in ‘WeeFIM eating’ score. 

Conclusion Most non-disabled Chinese children can achieve the visual motor skill of using chopsticks at 4.6 years. There was also a correlation with the age of achieving independence in the WeeFIM eating score. The skill of using chopsticks should be added as part of the tools, apart from spoons or forks, for scoring WeeFIM in Chinese children.
delicate sushi or quail egg with the pointed Japanese chopsticks. The Koreans and Thais use flat stainless steel chopsticks. The Vietnamese use Chinese-style chopsticks.

Chopsticks are the main eating tool in Chinese communities, and every child needs to learn the technique for holding and manipulating them. A pair of chopsticks is the primary tool for eating, and the physical movements of control are familiar to Chinese. The Chinese use chopsticks as naturally as Caucasians use knives and forks. An analogy of chopsticks is as an extension of one’s fingers. Chinese food is prepared so that it may be easily handled with chopsticks. In fact, many traditional Chinese households do not have forks at home.

For children, use of chopsticks plays an important role in the acquisition and development of eating skills. Their fingers need to work in a co-ordinated fashion, and they requires good visual motor co-ordination. This comprises a major fine motor developmental milestone in childhood. The use of chopsticks has been deeply integrated into Chinese culture. It became family bound and represented their respect for a person. Every member in the family should have at least one pair of chopsticks especially during important festivals. Even those family members who were away from home should have a pair of chopsticks on the table reserved for them, including the deceased loved ones.

The Functional Independence Measure in children (WeeFIM) has been standardized to assess the level of functional independence in children (Msall et al. 1994). It was developed by the USA National Task Force for Rehabilitation to assess disability in children aged 6 months to 7 years. WeeFIM consists of 18 items, with a seven-level ordinal scale for assessing a child’s performance in three domains (self-care, mobility and cognition) (Wee FIM System Clinical Guide 2000).

Cultural factors play an important role in different countries. The eating tool for Chinese is different from that for Americans, so that the tools for assessing the WeeFIM ‘eating’ item may not be applicable to Chinese children. It is important for us to know the developmental level for Chinese children’s manipulation of chopsticks. However, there is no normative data on the acquisition of chopsticks manipulation. We are interested to know the age of developing the skills of chopsticks manipulation, its relationship to WeeFIM and other demographic data. Therefore, during our pilot study of establishing a normative database of WeeFIM in Chinese children, we tried to obtain data on the use of chopsticks as well (Wong et al. 2001).

Subjects and method

Subjects

Normal Chinese children were randomly selected from three out of 15 Caritas kindergartens and four out of 36 Maternal and Child Health Centres in all 19 districts of Hong Kong. The mothers were interviewed by two medical doctors (SW, KC). Written consent was obtained from the parents. These children had passed the developmental screening tests relevant for their ages (at 6, 12, 18, 36 or 60 months) conducted in the Maternal and Child Health Centres targeted for all children in Hong Kong. This research was approved by the ethics committee of the University of Hong Kong. They were normal children without developmental delay or participation in any rehabilitation programmes (n = 455).

Eating score (ES)

The WeeFIM ‘eating’ item using the American norm was scored. Eating task is defined as follows: (1) use of suitable utensils such as a spoon or fork and cup; (2) bring food and liquid to the mouth; (3) preparing and moving food and liquid for swallowing; and (4) swallowing. A score of seven levels was assigned according to the degree of independence the child can perform. A Likert scale of 7 was assigned for ES according to the degree of independence the child can achieve:

7 = fully independent;
6 = need for an assistive device, modified food or fluid consistency, or more than a reasonable amount of time needed or concern for safety;
5 = need of supervision or cueing;
4 = minimal assistance (i.e. child performing 75–99% of the eating task);
3 = moderate assistance (i.e. child performing 50–74% of the eating task);
2 = maximal assistance or child performing only less than half the eating task;
1 = total assistance.

Chopsticks manipulation

During our pilot study in collecting WeeFIM data for normal Chinese children, we had the impression from the mother or chief caretaker that most children who can manipulate chopsticks obtained a score of 4 or above for the eating item of the WeeFIM and that children were seldom allowed to use chopsticks alone for eating in the early age of life. They started to use chopsticks as an add-on item with spoon initially. In Hong Kong, the family trained their children to use a Western spoon initially and added chopsticks when they found that their children were more competent. The typical Chinese spoon is different from the Western spoon. A Chinese spoon is mainly designed for drinking soup from a bowl. In the typical Chinese family meal, all the dishes are placed out of reach of children in the middle of a non-revolving table, and adults or older children with enough arm length had to pick up the food from the plates at a distance.

Chopsticks score (CS)

In view of the above observation, we decided to assign a CS of 1 for those children who could use chopsticks alone for eating in whatever manner and could finish up more than half the meal when the food was well prepared and placed in front of them. A CS of 0 implied that the child had not acquired the skill of using chopsticks alone for eating or finishing up to half the meal.

Mode of interview

Face-to-face interview with the mothers for a simple ‘yes’ or ‘no’ answer about the ability to use chopsticks for finishing more than half the meal was conducted by SW and KC. The same standard question was asked: When food is prepared (e.g. cut or chopped into pieces) and placed in front of the child, can your child use chopsticks to finish up more than half the meal in whatever way on their own? Your child can use the chopsticks to scoop the food into their mouth, pick up tiny bits of food or pierce the food with two chopsticks together in a cylindrical grasp. Other demographic data including sex, occupation of parents and any domestic helper were also obtained. We classified the families into five major social classes (I, professional; II, managerial and technical; III, clerical and minor supervisory; III, skilled manual; IV, semi-skilled manual; V, unskilled manual) according to Giddens’ (1993) classification. The subjects were the same subjects used to construct the normative database of Chinese WeeFIM.

Inter-rater reliability

Twenty mothers of normal children were interviewed independently by two examiners. Inter-rater reliability was calculated using weighted kappas for CS and ES with a result of 1. In addition, interclass correlation coefficients obtained for total scores in the self-care domain was 0.99.

Statistical analysis

Analyses were conducted using SAS software, version 6.12 (Cary, NC, USA). Wilcoxon rank sum test and Kruskal–Wallis test were used to examine the relationship between the age of acquiring chopsticks manipulation and factors such as sex, social class and presence of a domestic helper. Pearson’s correlation was used to correlate chopsticks score with eating score. A significance level of \( P < 0.05 \) was used for analyses.

Results

Samples

A total of 445 children, aged 6 months to 7.25 years (mean = 3.1 years; standard deviation = 1.87 years) was recruited. The boy:girl ratio was 0.57:0.43. For chopsticks score, 194 (44%) scored 1. The mean and median age for attaining a CS of 1 was 4.6 years and 4.25 years (Fig. 1).

Demographic factors

There was a statistically significant relationship between CS and age (Fig. 1). The mean age for
achieving a CS of 1 was 4.6 years (median age = 4.25 years; SD = 1.13 years). As for a CS of 0, the mean age was 1.9 years (median = 1.5 years; SD = 1.41 years) \((P = 0.0001)\). There was no significant relationship between CS and sex, social class or the presence of a domestic helper using the Kruskal–Wallis test.

Correlation of chopstick score with WeeFIM ‘eating’ score (Fig. 2)

There was strong correlation between CS and WeeFIM eating score (Pearson’s correlation coefficient 0.70, \(P < 0.0001\)). For achieving a chopsticks score of 1, the mean WeeFIM eating score was 5.63 (median = 6).

Discussion

Our data suggest that the mean age of using a pair of chopsticks to finish most of a Chinese meal was 4.6 years for Chinese children. In other words, by 5 years, most children can use a pair of chopsticks for eating. During the interview, we were impressed that parents of our children answered our questions as ‘Of course! My child is very clever; he could manipulate chopsticks 1 year ago. He is better than his cousins!’ It seemed that many parents use chopsticks manipulation as their own standard of assessing their children’s ability. Chopsticks are always available in Chinese families in Hong Kong. It can be quite alarming to parents if their children still failed to use chopsticks at, say, 5 years old. For paediatricians, it is our role to differentiate lack of exposure or practice from genuine developmental delay and decide on the time and plan of management.

WeeFIM was originally designed for use in American children, using forks and spoons for assessing ‘eating’ score. When we tried to correlate the two issues together, there was a significant relationship between achieving independence in WeeFIM ‘eating’ score and chopsticks score. For the majority of children with a chopstick score of 1, their eating score was above 5 (i.e. nearly independent).

There have been a few accidents related to chopsticks (Kuroiwa et al. 1995; Lung et al. 1995; Matsumoto et al. 1998). Our study demonstrated that Chinese children started to use chopsticks independently at quite an early age. Whether occasional accidents with chopsticks make parents hesitant to let children master the skills much earlier needs to be explored further.

Although our study provided a normative database for achieving chopstick manipulation, we only classified the score to either 1 or 0 in an ‘all or none’ fashion. In future research projects, we plan to study the age of attaining different ways of holding chopsticks, e.g. cylindrical, scissoring or the mature tripod approach. In addition, for those who can use chopsticks, we will explore whether they prefer to use the Western style (spoon, fork or knife) or the traditional Chinese style of purely chopsticks in finishing an ordinary Chinese meal.

Acknowledgements

We appreciated the help from the Department of Health (Maternal and Child Health Centres: Dr
Constance Chan, Dr Lai, Miss Lee, Miss Lam and the nursing team in Chai Wan, North Point, Cheung Sai Wan and Shatin Centres); Caritas kindergartens (Chai Wan, Hong Yau, Kai Yau and Ling Yuet Sin); and Annie Chan, Shum Yee Han and Shum Oi Han for technical assistance.

References