

Discussion on Children's Nutrition Education and Diet Environment in Southwest China

Fuming Gu

Department of Sport Medicine, Chengdu Sport University, Chengdu, 610041, China

Abstract

currently, children's nutrition and diet conditions in Southwest China are not so ideal, and nursery or kindergarten teachers fail to pay much attention to the education of children's nutrition. The nutrition knowledge, attitudes and behaviors of nurseries and teaching staff remind to be improved. Lacking of nutrition knowledge learning environment and resources is another cause to this issue; in terms of catering service environment, the nutritional value of lunch and desserts supplied by nurseries is not good enough. Therefore, it is important to strengthen children's diet and nutrition education in Southwest China, implement children's healthy diet behaviors, improve teaching staff's nutrition knowledge, attitudes and behaviors. Meanwhile, nutrition standards with regard to food supplied shall be prepared aiming to incorporate diet nutrition education and food supply quality into nursery's assessment and tutoring program.

Keywords

Nursery, Nutrition Education, Diet and Environment

1. Introduction

It is reported recently that[1-4] the diet quality of Chinese children and teenagers continues to decline with the intake of less fruits, vegetables, milk and juice but more beverages. It is known to all that unhealthy diet habit not only affects students' normal growth and development but also leads to early occurrence of aged chronic diseases. However, individual, family and society (including schools) are the main factors affecting the diet pattern and food selection. Personal and family factors will have great impacts on this, but the impact from society is relatively small. As they grow older, school plays an important role in shaping their diet behavior. Students spend most of their time at school for nearly 20 years from kindergarten to university. Even the whole life is closely connected to school. Therefore, the diet nutrition education during this period is important to their diet behaviors. Students can receive systematic and organized education at school as school is equipped with what they need. Various courses involving Chinese, society, nature, art, health are provided during this period to provide students with all kinds of skills required for their life. It is believed that only school education can provide people with basic knowledge of all kinds of skills required[5]. Similarly, students' knowledge, attitudes and diet behaviors towards diet and nutrition can be formed through school education. Center for Disease Control and Prevention (CDC) [6] clearly points out in the manual of Guideline for Promoting Health and Diet Behavior at School: children and teenagers need to form a diet pattern with the help of nutrition education to meet eating index and guidelines, the school becomes the best choice for the following reasons: 1) Almost all children and teenagers are at school; 2) Nearly 1/2 children and teenagers have their one meal at school and 1/10 have their two meals, therefore, school provides an opportunity for healthy diet; 3) School can teach students how to resist social pressure, diet is an act of social study and will be affected by social pressure. School-based nutrition education can take advantages of peer pressure to improve healthy eating habit; 4) Teachers can give professional nutrition education plan

through teaching skills and food supply as well as appropriate training; 5) It can be found that school education can certainly improve young people's eating habit and nutrition education at school including nutrition courses and teaching on one hand, referring to organized and systematic teaching activities; and eating environment on the other hand, including physical and interpersonal environment, such as lunch and food sold at school, teaching staff and peer's eating habits.

Students' healthy eating behaviors must be formed from the following aspects, one is to build an integrated healthy eating environment, namely making suitable strategies and implementation plans for teachers in charge of nutrition education course and nutrition aspects, eating and nutrition policy, teacher and students' belief, meal supply and snacks sold at school and advocating education [7,8,9]. The current situations of schools at all levels are different from each other and the nutrition education, current situations and strategies of eating environment are different among kindergartens, primary schools, middle schools, colleges and universities. This paper only focuses on current situation of nutrition education and eating environment in kindergartens. Corresponding improvement suggestions are provided by collecting literature, research reports, dissertations, laws and policies related to kindergarten's nutrition education in recent 10 years, analyzing children's nutrition intake, implementation of nutrition education, current situation and issues of meals supplied and discussing these issues with scholars and experts.

2. Analysis on Current Situation

2.1 Current situation of children's nutrition and diet

At present, children's diet nutrition data is insufficient, investigation and document research concerning nutrition intake of children aged from 1~6 during 2005~2015 shows that the current situation of children's nutrition and diet is far from satisfaction, the caloric intake of children of other ages fails to reach the standard required by WHO (daily recommended intake) except boys aged 2~4 and girls aged 3~4. The recommended average intake of protein shall be between 1.3 and 1.6 times in terms of nutriment and the actual intake is higher; the average intake for vitamin B1 for children aged 4~6 fails to reach the standard; the average intakes of iron for boys aged 3~6 and girls aged 1~6 fail to reach the required amount; all children's Zinc intake is insufficient, only 65%~85%. In terms of food category, the daily intake of vegetable for children aged 4~6 is about 1 (recommended amount is 2~2.5) and average fruit intake is about 1 (recommended amount is 2); the intake for dairy products decreases as they grow older and the average intake of dairy products for children aged 4~6 is less than 2. Therefore, they take too much protein instead of vegetables, fruits and dairy products, which is the main problem to be improved concerning children's food intake [13,14].

2.2 Current situation of implementation of kindergarten's nutrition education

It can be found from the investigation on current conditions of nutrition work and education needs carried out among 108 kindergarten teachers from 38 childcare centers in Chongqing in 2014:

- 1) Currently, the kindergarten teachers in Western China do not pay much attention to the diet instruction and nutrition education. Only 38.8% has implemented diet instruction and about 77.6% for less than 6 times a month. The average time is about 30min and about 76% only implements education during meal time. About 30% of teachers have arranged such course.
- 2) Lacking of relevant nutrition teaching materials is the biggest obstacle to implement diet instruction in nurseries. The common problem for teachers is lacking of teaching materials (65.6%), the next is in-coordination of parents (33.7%). The investigation shows that most teaching materials involve little with wisdom and talent development. The proportion of diet nutrition is extremely low in the existing teaching materials. And the activity goal does not fit for contents of teaching plan. The title of topic and contents of activities are improper. Relevant supplementary data in the teaching plans is incorrect and data source is unknown.

In recent years, health bureau and educational institutions set up preschool education network [15], but few (15.5%) parents and teaching staff have paid attention to relevant reports and information. As for teaching materials for preschool children and contents related to nutrition education, the existing ones only focus on introducing food, praising food and making food. However, the contents need to be improved such as having fun in eating ice- cream and introducing snacks.

2.3 Teacher cultivation and in-service education

Children stay more than 8 hours in the kindergarten and teachers play an important role in teaching them nutrition knowledge and designing suitable meals for them. According to the investigation, in the absence of learning environment and resources, the nutrition knowledge, attitudes and behaviors of kindergarten teachers in Southwest China remain to be improved. It lies in:

- 1) Lack of food nutrition and hygienic knowledge. 26.8% kindergarten teachers mistakenly assume that fats and oils are the safe sources for energy; 41.5% are unaware that food may be contaminated when the plate is washed by running water before placing it to the plate; half of teachers are unaware of the sodium content in the staple food, refrigerating temperature and defrosting methods of refrigerator, proportion of energy required for children per day and energy produced from 1g protein (sugar or fat).
- 2) Teachers fail to give correct diet instructions. 65.7% kindergarten teachers agree that children are in growth stage and meat can make them grow stronger. 91.2% believe that the nutrition knowledge in the books and magazines are correct, providing prizes is a good way to encourage children to eat vegetables, the food frequently occurs in the ads has no adverse effect on the children. In addition, more than half of them disagree that children can decide how many they will eat and what to eat.
- 3) Over 75% kindergarten teachers encourage children to try new food. For instance: about 35% teachers use beverages instead of water or does not involve various food in the diet; about 38.9% fail to choose food with rich calcium and food with light flavor; kindergarten teachers are not good at designing menus, 15.7% have participated in menu design and about 34.8% will not refer to the daily recommended amount provided by health bureau when designing the menu.
- 4) Teacher cultivation and in-service education lack of courses relevant to nutrition. Only 66.1% have learned nutrition courses and about 31.5% has attended in-service education courses or studies related to nutrition. In addition, the nutrition knowledge of teachers is generally acquired from newspapers and magazines and the correctness remains to be assessed. Currently, the teachers in the nurseries are mainly from teachers' colleges. And over 75% colleges list the children's nutriology or meal design as elective courses. The learning hours and contents for kindergarten's in-service training are not specified and the main contents of in-service training or study hosted by local governments or nurseries will be determined according to current national policy, local education policies or discussions of organizer and teacher's needs. Topics related to nutrition are rarely valued. Therefore, few courses are arranged.

2.4 Food supply in the kindergartens

1) Children's diet nutrition mainly depends on caregivers. Children can receive better nutrients if the education level of caregivers is higher. The nutritional cognition of mothers is related to children's nutrient intake. In addition to family caregivers, children's diet will be affected by the food supplied in the kindergarten. Once children are in the long day care nursery, the time they spend there is over 6 hours. And they have three meals there. The diet supplied there shall supply 1/2-3/5 of daily nutrition amount required by children. Therefore, the meals supplied in the kindergarten are crucial to children's nutrition intake.

2) Kindergarten serves as the first small social world for children. Meanwhile they contact different diet patterns. Therefore, the meals supplied will affect children's love for food. This study shows that the intake frequency of sweetened beverages (lactic acid drinks, juice, carbonated drinks and soft drink), sugars, traditional snacks (bean curd and nuts) and ice products (popsicle and ice-cream) is closely connected to kindergarten. Children go to kindergarten are more likely to take such food.

- 3) About 10.3% kindergartens provide 100% dairy products for more than three times a week while 36.8% kindergartens rarely provide 100% dairy products. The meals provided by 61.7% include sugary drinks, milk tea, black tea, white gourd tea, juice, green tea and fruit vinegar. The meals supplied by 45.3% includes caffeinated drinks such as black tea, milk tea, pearl tea with milk, green tea, tea jelly and coffee jelly.
- 4) 71.6% kindergartens provide steamed buns, steamed bread or bread together with a cup of milk, soybean milk or juice; but 8.5% usually provide snacks with much oil, sugar and salt (caramel treats, French fries, doughnut, chicken, cream filled crisp, etc.) together with sugary drinks. Though 38.1% supply fruits for more than five times a week, 30.5% do not provide fruits.
- 5) The nutrition quality of lunch and snacks is far from satisfaction. None of the nurseries supplies or nearly reaches 1/3 daily recommended amount for lunch food in terms of grains, eggs, beans, meat, fish and vegetables. Most nurseries are insufficient in grains and excessive in egg, bean, fish and meat. The drinks provided by 56.8% include caffeine and 11.5% supplies more than two times of snacks containing too much oil and sugar per week.

3. Discussions and Suggestion

All in all, the nutrition problems found in the kindergartens and nurseries in Western China mainly include: 1) Children's nutrition and diet conditions are not ideal; 2) Teachers pay little attention to children's nutrition education; 3) Lacking of teaching materials related to diet nutrition education; 4) Nurseries and teachers' nutrition knowledge, attitudes and behaviors remain to be improved; 5) Nutrition major, diet education, diet behavior change strategy courses are absent in the teacher training and in-service education; 6) The meal quality supplied by the kindergarten is not so good. The following suggestions are put forward concerning such issues.

3.1 Strengthen children's nutrition education and establish healthy eating behavior

1) Currently, the nutrition education courses are rare in the kindergartens. Firstly, education department shall prepare nutrition education ability indexes and course syllabus to strengthen children's nutrition education. Suitable teaching materials and tools concerning children's nutrition shall be prepared according to ability indexes and course syllabus. Secondly, children's nutrition teaching activity design resource manual shall be prepared for promotion and reference of teaching activities for kindergarten teachers and team concerned. More books related to children's nutrition shall be prepared and evaluation committee can be set up to recommend excellent books or magazines concerning nutrition education for nursery or parents. Meanwhile, kindergarten teachers or relevant nutrition staff is encouraged to write more books covering such issues.

2) Investigations shall be carried out for the formation and factors for children's eating behavior. Scholars and experts are encouraged to carry out researches in all aspects, discuss children's thinking mode and factors that affect their eating behavior to put forward effective strategies to help children form a healthy eating behavior.

3) Strengthen kindergarten teacher and teaching staff's nutrition knowledge, attitude and behavior. Nutriology and children's meal design must be listed as compulsory courses for kindergarten teachers and teaching training. Topics related to nutrition shall be added to the existing courses. Kindergarten teachers' nutrition knowledge, attitude and eating behavior shall be strengthened to better instruct children.

3.2 Create a healthy eating environment

1) Nutrition standards of meals and snacks supplied shall be specified. Recommended nutrient and quantity standards of meals and snacks must be made to promote the food quality and conform to children's nutritional requirements for kindergartens. Selection standards of various foods shall be provided to serve as reference for kindergartens to improve the quality of food supplied.

2) Employ nutritionist to be in charge of meal and snack menu design and supply. A designated nutritionist must be hired to implement recommended nutrients and quantity standards of meals and snacks. Nutritionist shall be responsible for menu design and review, food preparation supervision and staff training to make meals conform to health security and nutrition standards. Meanwhile nutritionists can be in charge of in-service education for staff, including meal and snack menu design, preparation and management to promote their knowledge and skill. As for catering design in the kindergarten, nutritionists and teachers shall discuss together to design nutritious and favored meals and snacks for children.

3) There are so many choices for children's meals and snacks, but most of them care only about taste and appearance. There are few assessments to judge whether it conforms to children's nutritional requirements. Children's recipes covering food, quantity, nutrient and cooking method shall be collected and analyzed to make them suitable for children and for reference.

3.3 Diet nutrition shall be included in the nursery's assessment and counseling.

Competent authorities have specified assessment systems for kindergartens, which focusing on education. It is suggested to add assessment items concerning the meal and snack quality to the existing assessments and shall take certain proportion. The meal and snack quality are expected to be improved with the help of it. Special counseling can be implemented for missing parts in the assessment to make it better.

4. Conclusion

Pupils are in a period not only crucial to growth and development but also important for forming their behavior and lifestyle. Correct nutrition knowledge will actively contribute to their eating behaviors. Nutrition education is implemented in this period can effectively promote their nutrition knowledge level, help to form a good eating behavior and lay a good foundation for their whole life. 3.2 Diversified nutrition education shall be implemented, including nutritional lecture, blackboard and school radio, nutrition class and theme class meeting, to effectively promote their awareness of nutrition knowledge. Health education is a process involving knowledge, attitude and behavior change. The understanding level of nutrition knowledge is critical for building a healthy diet.

Parents play an important role in forming and changing children's eating behaviors. Children's eating habits are related to parents' nutrition knowledge and behaviors. Schools and families shall cooperate with each other to help students to form a good eating habit and improve their physical fitness in all aspects.

References

- [1] Xu Yue ,Zhang Xinwei,, Zhang Xuemei et al. Health education intervention on knowledge, attitude and behavior of middle school students in [J]. China Public Health,2008,24(9):629-630.
- [2] Jia Genmei,Jie Shen, Zhang Peng et al. Effect of dietary health education intervention for primary school students in Jintan City, [J]. China Public Health,2011,27(3):374-376.
- [3] National Center for cardiovascular diseases. China cardiovascular disease report [R]. Beijing: National Center for cardiovascular diseases,2013:15.
- [4] Zhang Xuesong, Wang Zhu, He Mei et al. Analysis of the status quo of China's pre packaged food sodium content and its changing trend analysis [J]. health research,2014,43(2):250-253.
- [5] Vecchiarelli S, Takayanagi S, and Neumann C. Student'sperceptions of the impact of nutrition policies on dietarybehaviors[J]. J School Health. 2006,76:525-31.
- [6] CDC. Guidelines for School Health Programsto Promote Healthy Eating[M].1996:45.
- [7] USDepartment of Agriculture.Improving the school nutrition environment-A guide to local action. Internet:<http://www.fns.LJSda.gov/tn.28 June 2007.>

-
- [8] Li Yuan, Shi Xiaoming, Hou Peisen. The scientific evidence for the prevention of dietary nutrition and major chronic non communicable diseases [J]. Chinese Journal of Preventive Medicine, 2011, 45(5):459-462.
 - [9] China Nutrition Society. Chinese dietary guidelines [M]. Lhasa: Tibet people's press. 2012:22.
 - [10] Zheng Jinquan, Zou Shurong, Du Weiying, et al. Effect of nutrition intervention for some primary school students in Pudong New Area [J]. Chinese Journal of child health care, 2010, 18(3): 206-209.
 - [11] Ru Hua. students and parents in public health nutrition attitude[J]. Survey of behavior Chinese, 2007, 23(11): 1337-1339.
 - [12] Peng Yun, Cheng Jinmao, Wang Hong. Effect of "health promotion school" program on primary school students' nutrition KAP [J]. Medicine and society, 2004, 17(3):16-18.
 - [13] Ma Guansheng, Hu Xiaoqi, Wu Jin et al. The influence of parents on children's eating behavior [J]. Chinese School health, 2002, 23(6):486-487.
 - [14] Zhao Fang, Zhang Puhong, Niu Wen Yi. Survey of Beijing primary and middle school students' family members Na Yan intake and related knowledge and behavior [J]. Chinese School health, 2014, 35(6):840-843.
 - [15] China preschool education network. <http://web.preschool.net.cn/index.html>.