

## Social Current Situation, Safety Measures and Practical Reflection of Supplementary Food Addition for Infants——a case study of supplementary food for infants aged 7~24 months

Xihua Chen<sup>\*</sup>, Siying Wu, Yisi Yu, Jialin Chen, Zhuandi Zhai

Guangzhou College of Technology and Business, Guangzhou 510850, China

\*Corresponding author: qxihua@qq.com

**Keywords:** Infants, Supplementary Food Addition, New Parent, Social Current Situation, Safety Measures, Summarize and Reflect.

**Abstract:** Infants are the future of the country and the hope of the nation. Supplementary food addition is related to infants' growth and development, health and safety. Through the methods of literature research and questionnaire, the present paper found some current situation that the new parents have lower awareness of scientific feeding and insufficient experience in making supplementary food. What's more, the food safety coefficient of supplementary food market is relatively low, and there are fewer fresh supplementary food that are freshly made for immediate consumption, and etc. As a result, in order to ensure the healthy growth of infants, the present writer suggests that some safety measure should be taken to supplementary food addition. Initially, enhancing awareness of supplementary food and paying more attention to food safety. Simultaneously, improving the laws and regulations related to supplementary food and carrying out strict supervision. Moreover, ensure that the correct orientation is maintained in public to promote the development of the industry. Plus, to improve the safety system and create a quality brand. In the end, there are some simple recipes designs for 7~24 months old infants made by the present writer according to their development characteristics and nutritional requirements. And taking rice paste with spinach and lean meat as an example, the present writer explains its production process, summarize and reflect on the problems that should be paid attention to in the process of preparation, addition and feeding of supplementary food, for the reference of new parents.

### 1. Introduction

Nowadays, with the development of society and economy and the improvement of living standards, ordinary people are paying more and more attention to food safety, hygiene and nutrition, especially the diet of infants in the new era, which is the spotlight. There are a large number of post-80s and post-90s generations having gradually got married, settled down to a job and become parents. Consequently, the timely addition and preparation of supplementary food has become a topic that new parents pay close attention to. These new parents want to give their babies safe and nutritious supplementary food, but they lack relevant experience and are too busy working to make infant supplementary food by themselves. And this provides an opportunity for the development of the infant supplementary food industry.[1].

With the increase in the secretion of saliva and gastrointestinal digestive enzymes, the babies' digestive capacity is enhanced, and their stomach capacity is also increasing. They are able to digest and absorb other food besides milk.[2] Therefore, the timely and reasonable addition of supplementary food can ensure timely intake of various nutrients during the growth and development of infants. The addition of supplementary food is a gradual process [3], which should be based on the nutritional requirements of infants and the maturity of the digestive system. According to the principles that from thin to thick, fine to coarse, soft to hard, and less to more to add supplementary food such as rice paste, eggs, meat, fruits, vegetables, etc. This not only conforms to the development and perception rules of digestive organs such as the gastrointestinal tract of infants but also provides

them with sufficient nutrients and energy requirements, which is helpful for infants to gradually experience and adapt to a variety of foods and develop a good eating habit from passive feeding to active eating. As a result, the reasonable and timely addition of supplementary food and scientific feeding can effectively promote the healthy growth of infants.

## **2. Social Current Situation**

In order to better learn about the current situation of supplementary food addition for infants, the present writer conduct a survey by questionnaire on the cognition of supplementary food among the parents who have babies under the age of two. This is an online random survey with single and multiple choice questions. There are 200 individuals fill in the questionnaires. The number of returned copies is 200, and the final number of valid copies is 200, which means that the valid rate is 100%. Among the participants, 43% of the parents have infants aged 0 to 6 months and 57% of the parents have infants aged 7 to 24 months. Through the survey, the present paper finds out the social phenomenon of supplementary food for infants.

### **2.1. Lower Awareness of Scientific Feeding**

According to the result of the questionnaire, more than 80% of the parents consider that they have some knowledge of supplementary food, and almost all of the parents think that supplementary food addition is necessary. However, their knowledge of the principle, time, quantity, category and other aspects of supplementary food addition is not comprehensive, especially the relatively young or the new parents who live in the countryside for a long time. Taking the time of supplementary food addition as an example, 11.5% of the new parents have some cognitive errors. They do not know that the best time, in general, for supplementary food addition is when infants reach the age of 6 months.<sup>[4]</sup> When infants reach the age of 6 months, they cannot just obtain sufficient energy and nutrients such as Fe, Zn, I and Vitamin A from breast milk or formula. [4] What's more, the late addition of supplementary food will lead to insufficient energy supply, nutrition imbalance, growth retardation and food feeding allergies in infants, resulting in long-term safety risks. And early addition of supplementary food, in addition to feeding difficulties, will also easily lead to dyspepsia, and then cause gastrointestinal discomfort, affecting the behavior of eating. Consequently, only by raising the new parents' awareness of feeding, timely addition of supplementary food and scientific feeding, can infants have balanced nutrition, develop good eating habits and promote their healthy growth and development.

### **2.2. Insufficient Experience in Making Supplementary Food**

As a result of the improvement of living conditions, parents' spoiling and wrong parenting style, some of the post-80s and post-90s generations are lack of practical ability since they were a child, especially the post-90s, who even do not know about some simple life skills, let alone take care of their babies after becoming parents. Through the survey, the present writer found that more than half of the new parents sometimes make supplementary food by themselves, while 5.5% of them do not make supplementary food at all. Furthermore, more than 80% of these new parents rely on their parents to help them raise their children. Although most of them are busy with their work and lack of free time to make supplementary food, the survey found that these new parents are particularly concerned about the principle, time, order and making method of infant supplementary food addition, which indicates that they lack experience in making supplementary food and their practical ability needs to be improved. Therefore, the new parents should spontaneously use the network information to learn some methods of making supplementary food, practice and summary more, improve the ability in making supplementary food, and consult some experienced mothers or professionals while meeting difficulties. Plus, parents should choose foods rich in protein, vitamins, iron and other nutrients according to the growth and development of infants, and arrange supplementary food reasonably and appropriately for infants.

### **2.3. The Safety Coefficient of Supplementary Food is Relatively Low**

The result of the survey shows that, when it comes to the view on the supplementary food selling in the market, 76.5% of the parents consider it convenient and consuming less time. Nevertheless, in order to reap fabulous profits, there are many unscrupulous manufacturers and merchants produce and sale a large number of supplementary food products that not meet the standards, resulting in endless food safety problems. Consequently, there are 73% of the parents consider that the safety coefficient of supplementary food products on the market is low. When buying supplementary food on the market, more than 90% of parents give priority to its quality and production date, then consider its nutritional value, and the next is its texture, mouthfeel, taste, etc. As we can see, with the improvement of life quality and consumption level, parents have higher requirements for infant supplementary food. They not only pay attention to the safety and health of supplementary food, but also think highly of its nutrition. Therefore, in order to ensure the safety and nutritional balance of supplementary food, parents will choose to buy supplementary food in supermarkets or e-commerce platforms with corresponding food safety qualifications, or buy them under the guidance of professional nutritionists.

### **2.4. There are Fewer Fresh Supplementary Food that is Freshly Made for Immediate Consumption**

The survey shows that 88.5% of parents have the experience of buying supplementary food in the supermarket or on the e-commerce platform, and only 4.5% of parents buy it on the delivery platform. The reason for the above situation is that there is fewer fresh supplementary food which are freshly made for immediate consumption in our country. By visiting some delivery platform such as Meituan, Eleme, the present writer found that there are hardly any merchants offering fresh immediate supplementary food. What's more, through visiting some e-commerce platform like Tmall, Jingdong and some physical supermarkets like CR Vanguard, RT-Mart and Trust-Mart, the present writer also found that they basically only provide semi-finished supplementary food, and rarely provide fresh, immediate supplementary food. As a result, it is very inconvenient for parents who take their children out and meet them crying and hungry. While 84.5% of parents said that if there is a service that provides fresh, immediate supplementary food for infants, they are willing to know more about it and try it out. This also indicates that there is a certain market in China for providing infants "fast food" that is safe, hygienic and fresh according to infants' growth and development needs.

## **3. Safety Measures**

### **3.1. Enhancing Awareness of Supplementary Food and Paying More Attention to Food Safety**

The safety of infants' complementary foods is a major issue related to the national interest and people's livelihood. Both the producer of supplementary food products, the government regulatory authority and the sellers and buyers should raise their awareness and pay more attention to food safety. In particular, the Party members and cadres must take the lead in observing discipline and law, strengthen food safety education, actively learn relevant legal knowledge such as the *Food Safety Law*, consciously protect the interests of the masses, and put their ideological consciousness into practice. What's more, by the methods of consulting professional nutritionists, Internet, and WeChat Official Accounts, etc., the new parents should take the initiative to learn infants' supplementary foods common sense, understand the infant dietary rules and scientific feeding methods, and enhance awareness of food safety. Plus, they could consult some experienced mother about the problem that should pay attention to while purchasing supplementary food, and improve their ability to discern the quality, safety, nutrition and other aspects of supplementary food. Also, it is recommended that new parents can try their best to make fresh supplementary food for infants by themselves, which is hygienic, healthy and nutritious. And by doing so, they do not have to worry about being added with

an inappropriate condiment, and can ensure the food safety, nutritional needs and physical and mental health of infants.

### **3.2. Improving the Laws and Regulations Related to Supplementary food, and Carrying out Strict Supervision**

In recent years, food safety issues have emerged endlessly, and many parents are concerned about whether there are safety problems in supplementary food addition for infants in the market. National food safety departments need to strengthen organization and leadership, fully prepare to deal with major food safety issues, improve laws and regulations, refine implementation rules, formulate action guidelines, establish rigorous standards, implement the principal responsibilities, and carry out strict supervision. Moreover, units and individuals that produce and sell supplementary food products with potential safety risks shall be held serious accountability and severe punishment. [5] At the same time, online catering units also should be strictly monitored to ensure the same standard quality of online and offline food safety. Only by perfecting laws and regulations can the supervision and law enforcement departments have laws to follow, and can better ensure the safety of supplementary food and improve parents' trust on the addition of infants' supplementary foods.

### **3.3. Ensuring that the Correct Orientation is Maintained in Public to Promote the Development of the Industry**

The safety of infant supplementary food needs the supervision of the whole society. In recent years, with the in-depth promotion of fully advancing the law-based governance and enforcing strict Party discipline, the public's awareness of the rule of law has been constantly enhanced, and the supervision by public opinion has achieved better results, and among which, the news media is the most effective way of public opinion supervision. Therefore, it is suggested that the news media shall adhere to the facts, make positive reports on typical cases that producing and selling infant supplementary foods that are safe and healthy, meet nutrition standards, and with guaranteed quality. Simultaneously, they shall strongly condemn some acts, such as violating food safety regulations, disrupting the normal order of the market, damaging the health and safety of the people and so on, so as to strengthen the supervision function of public opinion on supplementary food for infants, purify the unhealthy atmosphere of supplementary food industry, ensure the safety of supplementary food, enhance parents' confidence in purchasing supplementary food, and promote the healthy development of supplementary food industry.

### **3.4. Improving the Safety System and Creating a Quality Brand**

In the infant supplementary food industry, the production link is particularly critical. The producers and operators should regulate the food production process, pay attention to food safety and hygiene, employ healthy production staff, reserve high-end professional and technical personnel, and timely carry out technical training and safety and quality awareness education for the working staff, so as to improve their technical level and professional quality. What's more, they should abide by the national food safety laws and regulations, formulate evaluation indicators, improve the safety system, strictly implement standards, regulate the production process, and improve the qualified rate of food. Meanwhile, it is also necessary to formulate plans to prevent food safety accidents, implement advanced management systems, and ensure that all indicators and processes are open, transparent and traceable. In addition, enterprises should also increase the research and development efforts, innovate the supplementary food variety, increase the variety of supplementary food, create a quality brand, and constantly improve the quality of infant supplementary food.

## **4. Practice and Reflection**

### **4.1. Recipe Design and Preparation**

According to the "*Guidelines for Infant Feeding and Nutrition*" [6] written by Dai Yaohua (2019) from the Children's Health Branch of the Chinese Preventive Medical Association, the "*Feeding*

*Guidelines for Infants Aged 7~24 Months*"[4] written by Yang Yuexin and others (2016) from the Chinese Nutrition Association, Han Zhu's (2016) "*Successfully weaning with supplementary food*"<sup>[2]</sup>, and connecting with the infant growth and development characteristics and nutritional requirements, the present writer have designed some recipes that are suitable for infants from 7 to 24 months of age, as shown in Table 1. The following takes rice paste with spinach and lean meat as an example to illustrate the specific production method, and gives summary and reflection on homemade supplementary food and supplementary food addition, for reference by the new parents.

Table.1. Recipe design for infants aged 7 to 24 months

Months of age	Key supplementary nutrients	Edible complementary food name
7 months	Protein, Vitamin D, Iron, Vitamin A	Rice Paste with Spinach and Lean Meat; Pumpkin&Chinese Yam Mash; Apple&Sweet Potato Mash; Codfish&Potato Mash
8 months	Protein, Vitamin D, Iron, Vitamin A	Pumpkin&Yolk Mash; Chicken&Potato Mash; Milk Curd with Broccoli; Rice Paste with Grape Mash
9 months	Protein, Vitamin D, Iron, Vitamin A	Carrot&Shrimp Porridge; Tomato&Beef Porridge; Egg Yolk&Pea Paste; Pear, Licorice& Lotus Root Juice
10months	Vitamin C, Selenium, Vitamin B	Small Carrot Steamed Buns; Yam&Chicken Porridge; Strawberry&Lotus Root starch; Eel Noodles with Tomato
11months	Vitamin C, Selenium, Vitamin B	Quinoa&Red Bean Porridge; Steamed Egg Yolk with Shrimp; Bean Curd with Fish Mash; Tofu Cake with Shrimp and Seaweed
12months	Vitamin C, Selenium, Vitamin B	Beef Egg Congee; Tomato and Pork Liver Soup; Spinach Egg Cake; Soup with Tofu and Shrimps
18months	Iodine, Vitamin A, Fat	Millet Congee with Jujube Paste; Pumpkin&Beef Soup; Shrimp Balls with Tremella; Egg Custard with Liver
24months	Iodine, Vitamin A, Fat	Mussel Porridge with Lean Meat; Steamed Egg with Clams; Steamed Ground Pork with Quinoa and Chinese Yam; Nigiri with Sweet Potato

Nutritional value: Spinach contains a lot of beneficial elements such as calcium, iron, potassium and folic acid, etc. It is rich in nutritional value, can activate the brain function of infants and promote gastrointestinal motility; Furthermore, spinach is rich in carotene, which can effectively protect the baby's eyesight. Meanwhile, pork is rich in high-quality protein and iron, which can guarantee the normal growth and development of infants and improve their immune system.

Ingredients: spinach, rice, pork tenderloin

Tools: small casserole, kitchen knife, food processor, chopping block

Production process: ①Take an appropriate amount of rice, wash and soak it in advance, and then put into the casserole; ②Wash the spinach for the first time, and wash it again with boiling water in order to remove oxalic acid and phytic acid, then and cut into small pieces; ③Mince the lean meat and wait until the porridge is 90% cooked, stir well; ④Add the spinach and cook together; ⑤Pour the cooked porridge with spinach and lean meat into the food processor and stir into a paste.

## 4.2. Summary and Reflection

The production, addition and feeding of infant supplementary food is a science, which requires to follow certain rules and master methods and skills. Therefore, the new parents should take the time to learn and practice, and constantly summarize and reflect on the process of raising baby. Moreover, here's the summary and reflection of the present writer: Initially, the addition of supplementary food cannot replace breastfeeding. Infants between 7 and 24 months of age are not yet able to obtain sufficient nutrients from supplementary food, so they still need to be breastfed at this stage. Furthermore, the types of supplementary foods for infants of different months of age should be

different. At the initial stage, rice flour, vegetable puree, fruit puree would be the first choice to strengthen iron, and only one type of new food can be added at a time. During feeding, the physiological reactions of infants should be observed, and attention should be paid to whether there is anorexia, antifeedant, food allergies, or frequent adverse reactions such as vomiting and diarrhoea after having a certain supplementary food within 1 to 2 days; if necessary, stop feeding this kind of supplementary food in time and change to other. And the supplementary food such as meat, poultry, fish and egg yolk can be provided later. Thirdly, the texture of supplementary foods should be different for infants at different ages. The younger the infant is, the weaker their stomach digestive ability is. As a result, it is necessary to add supplementary foods according to the principles of thin to thick, fine to thick, and soft to hard, and provide sufficient carbohydrate foods for infants, such as porridge and noodles to help them digest. Plus, the number of meals and amount of food for infants of different months of age should be different. Supplementary food addition is a gradual process from less to more, starting once a day, each time 1~2 tablespoons of rice flour or vegetable puree, fruit puree. And with the development of time and the increasing of variety, the supplementary food can gradually increase to 2 to 3 times a day, each time half a small bowl or more. Fifthly, attention needs to be paid to the details of the homemade supplementary food. Infants within the age of 12 months have limited chewing ability. Consequently, vegetables, fruits, beans, meat and other supplementary food should be cut, ground or mashed for them. And, parents should not add seasonings to supplementary food, and try to reduce the content of sugar and salt as much as possible. In addition, the variety should be diversified, and the ingredients can be cross-matched to form different flavors, which will allow infants to learn to adapt and ensure their nutritional balance. Last but not least, patience is required while feeding. As we all know, infants lack the ability to control themselves, have difficulty to eat alone. What's more, they will occasionally cry, become ill and need to be comforted. Therefore, the feeder should be patient, actively encourage them, and try multiple times to help them restore a pleasant state of mind and take their initiative to eat.

What needs to be noted is that the production, addition and feeding of supplementary food all need to be determined according to infants' nutritional requirements and the maturity degree of their digestive system. Due to the different growth and development rates of different infants, individual differences are also large, especially premature infants and small-for-gestational-age (SGA) infants. And for these infants, the supplementary food should not be added too early. Also, the new parents should feed their infants according to their appetite and digestion, and check their body length, weight and other growth&development indicators regularly in order to measure whether the feeding can meet infants' nutritional needs.

## **5. Conclusion**

The growth and development of infants needs timely and reasonable addition of supplementary food. Whereas, the endless safety problems of supplementary food have threatened the lives and health of infants. Consequently, the state should pay more attention to food safety issues and vigorously implement the food safety strategy to ensure the safety of supplementary food. Also, enterprises should adhere to their conscience, regulate the production process of supplementary food, and produce high-quality, safe, and healthy supplementary food. Meanwhile, the new parents should be encouraged to take the initiative to learn knowledge of supplementary food addition, learn to feed scientifically, try to choose green, fresh and healthy ingredients, make nutritional supplementary food for infants, and jointly care for their healthy growth.

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