

Study on the Health Status of Children and Adolescents under the Influence of COVID-19

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Abstract

Background: The COVID-19 epidemic is a public health security event affecting the whole country, which has a certain impact on the development and current situation of the health field. As a special group, children and adolescents need to receive attention and special care. **Purpose:** To study the health status of children and adolescents under the influence of COVID-19. **Method:** To collect and analyze the physical, mental and mental health data of 448 children aged 3 - 18 years in the Pediatric Medical Center of the Second Hospital of Jilin University since the COVID-19 outbreak, so as to grasp the physical, mental and mental health status and existing problems of children and adolescents under the impact of COVID-19 outbreak. **Results:** Food (seafood, mangoes, dairy products, animal protein, soy, peanuts, etc.) is the main allergen in the children and adolescents who participated in the survey, followed by inhalation (pollen, cat and dog hair, etc.). The diet was relatively normal, but there were still unhealthy eating behaviors, the detection rate was 5.36%. High calorie diet, high cholesterol diet, high salt diet, low protein diet, liquid diet in order from high to low, 85.27% of the normal water intake, drinking behavior was greatly affected by the family environment and school environment. The main problem affecting children's digestion is constipation. Functional constipation accounts for more than 90% of children's constipation, and its causes are mainly genetic factors, metabolic factors, mental factors, diet factors, etc. Genetic factors and unreasonable diet are the causes of children's research results show that among 448 children and adolescents, 425 are in normal mental conditions. 94.87%; 13, or 2.9%, were in the doldrums; There were 10 people in the state of hyperactivity, accounting for 2.23%, the main cause of functional. **Conclusion:** The health cloud platform was used to manage and analyze the data, in order to lay the foundation for the healthy growth and development of children and adolescents as well as the whole life cycle management of individual health.

Keywords

Children and Adolescents, Health Status, COVID-19

1. Introduction

With the rapid development of science, technology and economy, China has accumulated some experience in the management of children and adolescents' health status. However, the physical and mental health status of Chinese children still needs to be further developed and improved [1] [2]. Schools and parents pay less attention to students' physical and mental health, which is not professional enough, and the supply of social related medical care is insufficient [3]. At the same time, the psychological problems of children and adolescents appear younger, more difficult to treat and less attention. Especially during the COVID-19 pandemic, the physical and mental health of children and adolescents urgently need the care and intervention of parents, schools and hospitals. Therefore, this paper aims at the children and adolescents in Jilin Province as the main target of health services, and through functional modules such as data collection, Internet guidance and health archives, obtains the physical and mental health problems of children and adolescents, provides follow-up services for the healthy growth of children and adolescents, and meets the needs of personalized and precise medicine.

2. Patients and Methods

This paper collected the new champions at Jilin University in the second hospital of pediatrics clinical center since the outbreak of 448 children with 3 - 18 adolescent gender, date of birth, medical history, history of allergies, personal history, family history, family, food, drinking water, digestion, mental state, births, such as data information, and to have the following data analysis.

3. Results

3.1. Sex Ratio

Data showed that among 448 children and adolescents, 223 were girls, accounting for 49.78%; There were 225 boys, accounting for 50.22%.The sex ratio was nearly even and statistically significant (**Figure 1**).

3.2. Allergies

In all subjects allergic history, food (seafood, mango, dairy, animal protein, soy, peanuts, etc.) was the main allergen, followed by inhaled substances (pollen, cat and dog hair, etc.) [4] [5]. In addition, drug allergy and alcohol allergy are also worthy of warning for children and parents. Different types of allergic diseases are often caused by different types of allergens (**Figure 2**).

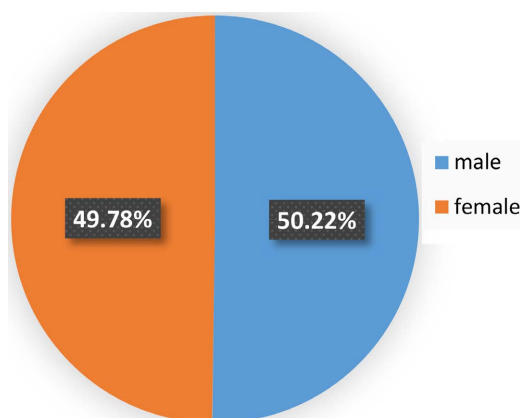


Figure 1. Sex ratio.

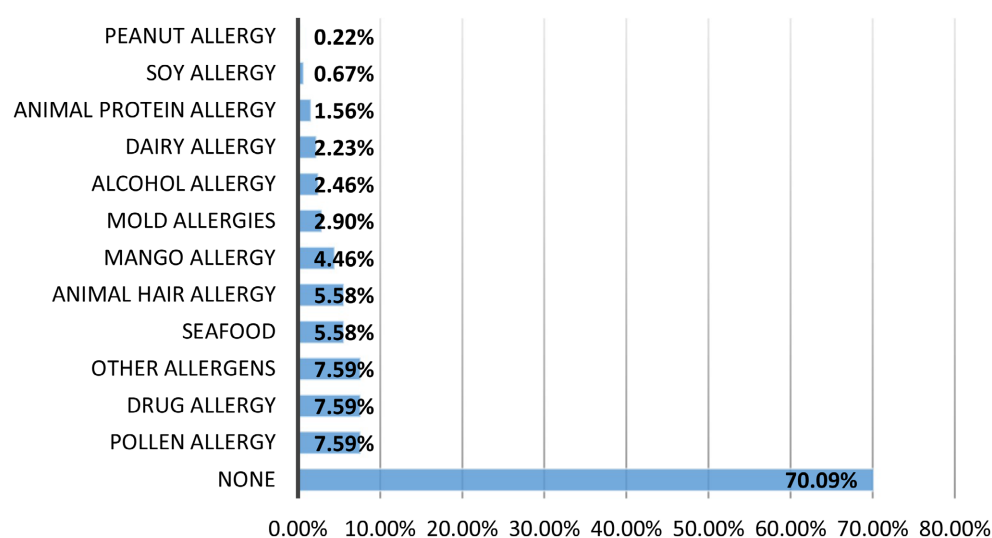


Figure 2. Proportion of allergens.

For various types of allergies caused by different allergens, different prevention methods should be focused on, so as to have good preventive measures for the occurrence of allergic diseases. In the course of life, allergens should be effectively controlled, so that children will be exposed to pathogenic factors as little as possible in their life [6] [7].

Therefore, a clear understanding of the types and etiologies of allergic diseases will be helpful for the determination of allergens and disease treatment in clinical and daily life. At the same time, these can provide references for later classification and diagnosis.

3.3. Past Medical History

According to the analysis of data from 448 subjects, most of them had no or unknown typical or recurrent past medical history. Among the established past medical history, diabetes was the most common, and the rest were allergic rhinitis, pneumonia, asthma, bronchitis and other respiratory diseases (Figure 3). Children and adolescents with diabetes tend to have anxiety, depression, and other

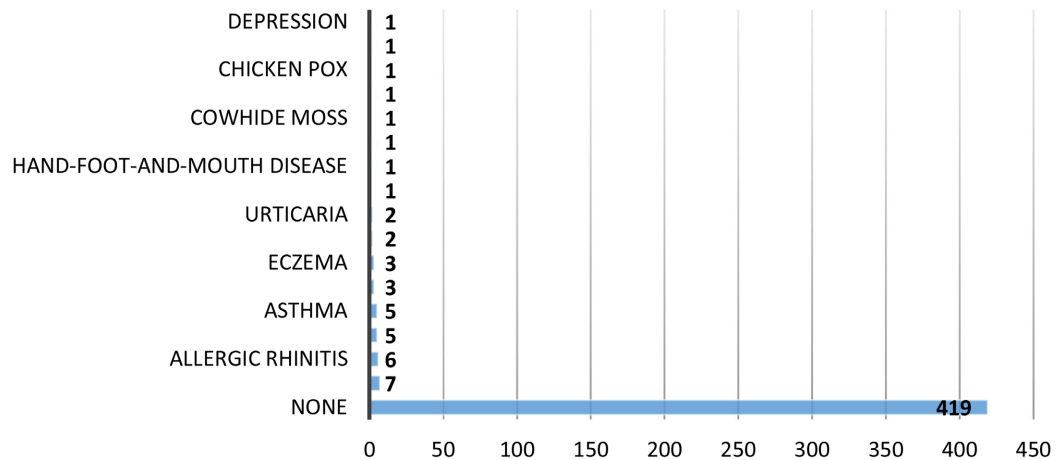


Figure 3. Previous medical history.

adverse emotions due to their young age of onset, long course of disease, long-term dependence on insulin therapy, and more complications, which affect the growth and development of children and adolescents and their social adaptability [8]. In order to control the development of the disease, children need to strictly comply with the treatment plan through self-management, but this may be difficult for children and adolescents, and their low self-management ability often leads to poor blood glucose control. Therefore, it is worth paying attention to how to improve their self-management ability through effective interventions [9].

Some studies have shown that parental smoking is an important risk factor for increasing the risk of respiratory diseases in children and adolescents. Indoor humidity and indoor mildew may increase the risk of respiratory diseases. Changes in living room environment and geographical location can prevent respiratory diseases in children and adolescents. If health management is not carried out in a timely manner, it may affect their normal life in adulthood.

Families, schools and hospitals should provide timely guidance to people with these preexisting conditions, which can be recurring and even lifelong: recognize that their lives are changing, take action to prevent crises, seek support openly, take on the burden of self-care, accept the “new normal” and hope for a normal future. The initiative of young people should be fully tapped, so that they can build confidence in disease management and adjust to the “normal state” of physical [10], psychological, study and social life as soon as possible. Families and schools should strengthen health education for children and adolescents, cultivate a healthy environment, prevent the occurrence of common diseases in children and adolescents, and promote the healthy growth of children and adolescents for those who have not found that their past medical history or diseases can be cured [11].

3.4. Family History

Most people do not have a clear understanding of family history. Most people

think that they have no family history or know nothing about family history. Among the participants who had some knowledge of family history, diabetes and hypertension were more common [12] [13], followed by allergic asthma, allergic tracheitis, congenital heart disease, tumor, and brain infarction (Figure 4).

Diabetes has become the third largest after tumor, cardiovascular disease serious threat to human health of chronic diseases, now think that the disease is on the basis of genetic incorporates a variety of complex results behavior factors and environmental factors, genetic factors, is regarded as the important risk factors for diabetes, research shows that the risk of diabetes and those with a strong family history of diabetes was 4.27 times of the general population; Therefore, it is recommended that people with a family history of diabetes, especially male children and adolescents, should strengthen scientific blood glucose management, such as weight control, reasonable diet, exercise, smoking cessation, alcohol restriction and blood glucose and lipid monitoring, so as to prevent the occurrence of diabetes and slow down the trend of diabetes onset at a younger age.

Cardiovascular disease is the most common cause of death in the world, and hypertension is the most common risk factor for cardiovascular disease. Hypertension is a multifactorial disease caused by a combination of genetic and behavioral factors. Several studies have shown that people with a positive family history have a higher risk of developing hypertension than those with a negative family history. Therefore, it is recommended to carry out targeted health education activities to improve the awareness and self-management awareness of children and adolescents on smoking, drinking, high-salt diet and high-fat diet, so as to further improve the health literacy level of residents and popularize the skills of controlling related risk factors. Although drug therapy and health behavior interventions can control the blood pressure level of hypertensive patients to a certain extent, the incidence of hypertension can be more effectively controlled only by focusing on the primary prevention of behavioral risk factors, especially for those with a family history of hypertension. How to find the most effective intervention measures for patients with a family history of hypertension in many ways is the direction of future research.

Some studies have shown that children and adolescents with a positive family

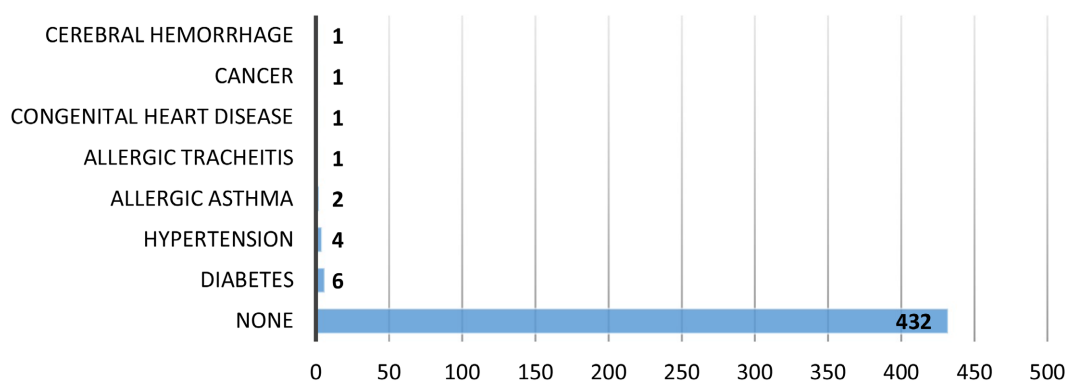


Figure 4. Family history of disease.

history of allergy, especially those whose parents have a history of allergy or have a family history of asthma, are more likely to suffer from allergic diseases, which indicates that positive family history is a high risk factor for allergy in children and adolescents. Early intervention for children and adolescents with high risk factors may play a certain role in preventing the occurrence of allergic diseases in children and adolescents [14].

Family history is of great significance for clinicians in the diagnosis and treatment of patients, and preventive health care in daily life also needs to be related to family history to carry out specific preventive measures [15]. Therefore, in order to prevent various diseases and understand the risk of disease, this paper believes that it is necessary to conscientiously collect and establish family health records, truly achieve a comprehensive and accurate understanding of family disease history, so as to promote the healthy growth of children and adolescents.

3.5. Family Situation

The results of the study showed that most of the adolescents who participated in the survey lived with their parents, while some lived with their grandparents (Figure 5). The family is an important place for adolescents to grow up, and many behaviors of adolescents are shaped by the family. Among the factors that affect adolescent behavior, family factors account for the largest proportion. In other words, family factors play a decisive role in the development of adolescents [16] [17].

Family is the most basic and important part of the external environment that affects the psychological behavior of children and adolescents. The emotional interaction between family members will affect children's emotional actions. In the process of family integration and regulation, the absence or failure of emotional factors will produce negative emotional energy for family members. The emotional strength of other family members can stimulate or suppress the enthusiasm and longing for life of adolescents. Therefore, regardless of the family situation and the composition of family members, parents can guide adolescents

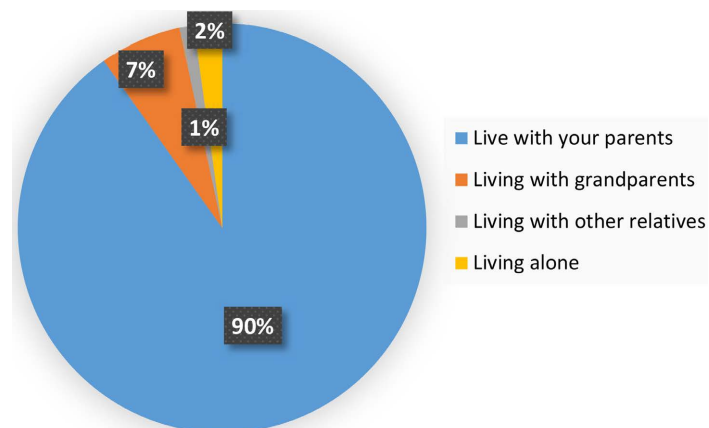


Figure 5. Family situation.

and children to establish good behavior habits and character qualities with correct emotions and behaviors, which has an important impact on their future development.

3.6. Number of Siblings

The results showed that more than 60% of the participants were only children, and nearly 40% were non-only children (**Figure 6**).

Some research results showed that the physical condition and physical, functional development level, family education of only children may be better than those of non-only children. In addition, only children may have different communication skills with their peers and non-only children.

Family education would change with the development of times, our country implements the two child policy after parents shall duly and timely change education idea, the content of family education [18], family education, family education, family relationships, parents' moral quality, cultural quality of the parents, parents quality of life and the way of family living conditions and family life. Both the only child and the non-only child have their own advantages and disadvantages in family education. If these two types of families can each exploit their strengths and avoid their weaknesses, China's family education will be more and more optimized [19].

3.7. Diet

Among the children and adolescents who participated in the survey, the diet was relatively normal, but there were still unhealthy eating behaviors, and the detection rate was 5.36%. In order from high to low, they were high calorie diet, high cholesterol diet, high salt diet, low protein diet and liquid diet [20] [21]. Compared with high-salt diet, low-protein diet, liquid diet and other dietary behavior problems, the detection rates of high-calorie diet and high-cholesterol diet were significantly higher (**Figure 7**).

There was a certain association between dietary behavior problems and health status. Fewer dietary behavior problems were associated with higher health status,

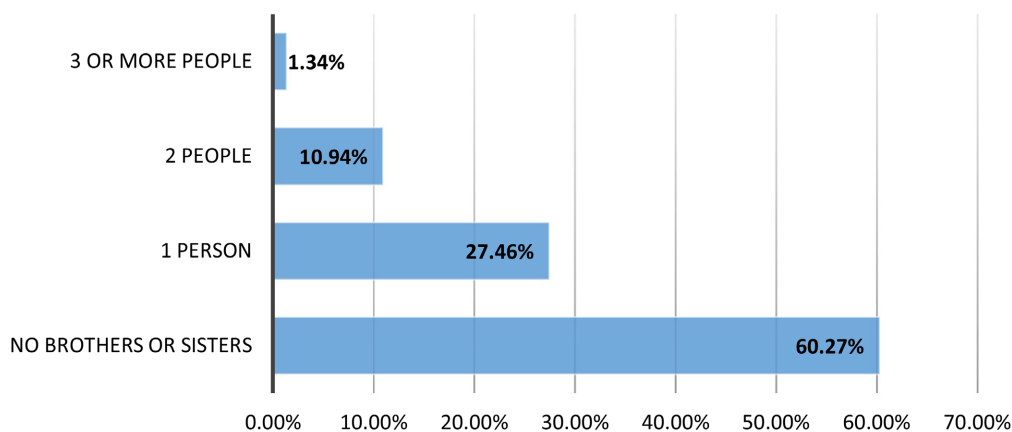


Figure 6. Number of siblings.

and vice versa. Dietary behavior problems are easy to cause simple obesity, low body weight, growth retardation, wasting, anemia and other health problems.

Children and adolescents are important stages of human growth and development. In the development process of this stage, it is necessary to ensure the scientific and rational diet, so as to lay the foundation for healthier and faster development. In order to further improve the health level of children and adolescents, parents and teachers must pay attention to the solution of dietary behavior problems, carry out health education lectures on nutrition, so as to cultivate good eating habits of children and adolescents.

3.8. Water Intake

Among the children and adolescents who participated in the survey, 85.27% drank normal water, but 13.84% did not reach the 1200 mL recommended in the Dietary Guidelines for Chinese Residents 2016. Drinking water behavior was greatly influenced by the family environment and school environment, such as parents' education and whether the school drinking water equipment was complete. Inadequate water supply facilities in schools, prohibition of drinking water during classes and other measures will reduce the amount of drinking water of school students [22] [23] (Figure 8).

In addition to inadequate water intake, school-age children also have a high intake of sugar-sweetened beverages (0.89% of the surveyed population), which can lead to overweight and obesity, which can lead to serious diseases such as diabetes.

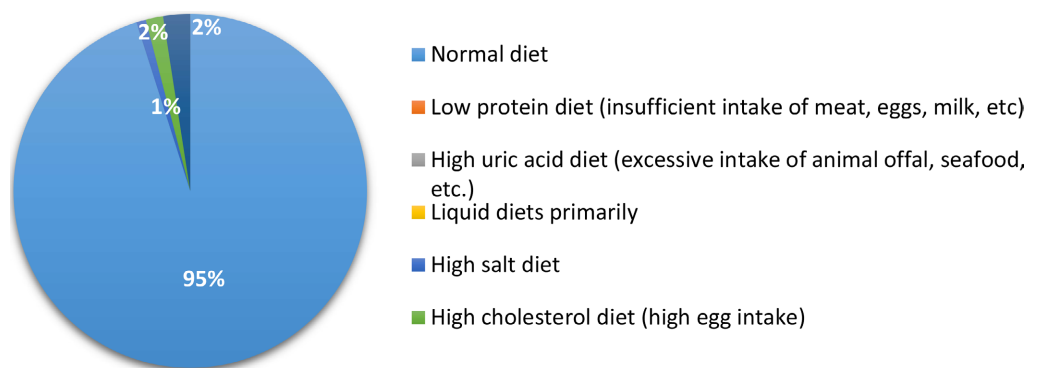


Figure 7. Dietary situation.

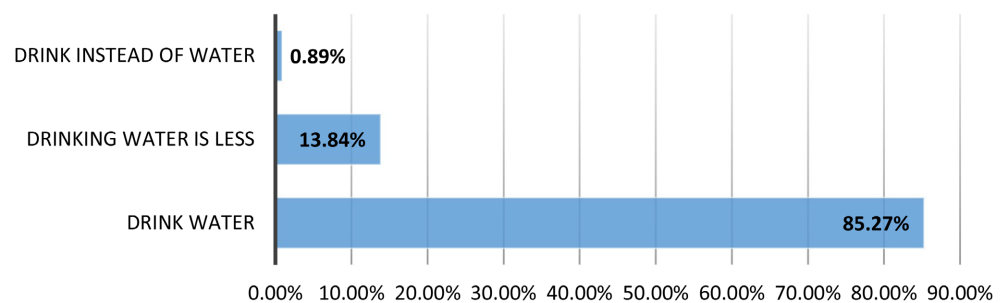


Figure 8. Drinking water status.

Children and adolescents have a relatively large body surface area, which results in their body surface temperature being more affected by changes in environmental temperature. In addition, compared with adults, children and adolescents have a higher proportion of body water, a higher level of daily activities, and an immature thirst nervous system, all of which may lead to children and adolescents being more susceptible to dehydration. Healthy drinking water is of great significance for the healthy growth of adolescents and adolescents. Therefore, it is necessary to carry out drinking water health education, improve children and adolescents' drinking water health literacy, promote children and adolescents to drink enough water, maintain appropriate hydration status, and then promote physical health.

3.9. Digestion

The main problem affecting children's digestion is constipation. The characteristics of constipation vary in children of different ages, and the most common is functional constipation (Figure 9). Functional constipation accounts for more than 90% of children's constipation, and its formation is mainly caused by genetic factors, metabolic factors, mental factors, dietary factors, etc. Genetic factors and unreasonable diet are the main causes of functional constipation in children [24]. The research on the treatment of pediatric constipation has not been widely carried out in China, and the treatment guidelines suitable for pediatric constipation are not perfect. Many problems of pediatric constipation need to be further studied. Only by understanding the etiology and active treatment can the problem of constipation be solved correctly and effectively [25].

3.10. Mental Condition

The results showed that among the 448 children and adolescents, 425 were in normal mental condition, accounting for 94.87%; There were 13 children in a state of depression, accounting for 2.9%; And 10 were in a state of hyperactivity, accounting for 2.23% (Figure 10). At present, the mental health problems of adolescents and children cannot be ignored. Due to the concealment of psychological

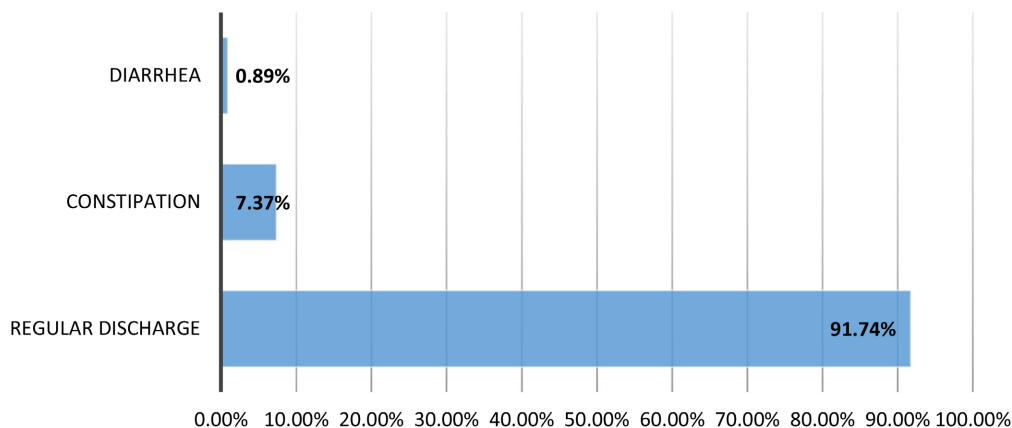


Figure 9. Digestion.

phenomenon, parents and schools can not find out the key in time. Studies have shown that many children’s physical discomfort is caused by psychological problems, such as frequent headaches, dizziness, stomach pain and so on. In addition, family history should not be ignored, such as individual children and adolescents themselves are depressed, and there is a family history of mental illness. Therefore, through further follow-up investigation, we will timely grasp the condition of the children, timely exclude organic lesions, and contact the psychological state of the adolescents and children, so as to reduce the incidence of mental health problems.

3.11. Birth Condition

According to the survey results, nearly 5% of the children and adolescents surveyed were preterm (Figure 11). Significantly higher in recent years, although the survival rate of premature infants, but their long-term morbidity and negatively correlated with gestational age and birth weight premature children in adolescence ability to adapt social life gradually progress, but behind the age full term premature children period operation ability have pursued the phenomenon of full term and independent living ability and the full moon There are increasing trend along with the age growth. The birth weight of most late preterm infants is lower than that of normal full-term neonates, and the organ system of

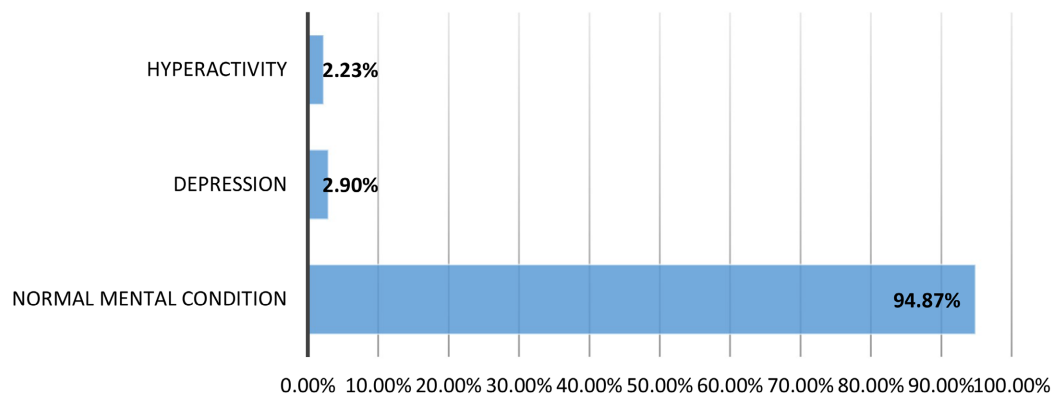


Figure 10. Mental state.

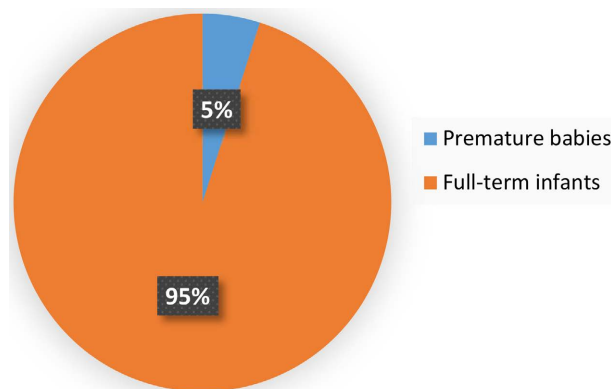


Figure 11. Birth status.

preterm infants is immature, which is prone to a variety of complications.

Compared with full-term infants, preterm infants are not fully developed, and their respiratory system, digestive system, body temperature regulation, immune function and other aspects are weak. Parents and medical staff need to pay special attention to them. Premature infants will encounter greater survival challenges and need to take out more energy to cope with the interference of external adverse factors, so it is very important to prevent premature birth. Medical staff should inform pregnant women of relevant precautions, such as keeping a good mood, moderate exercise, avoiding overwork, not squeezing the abdomen or doing large and difficult movements, walking should be careful and slow, avoid slipping, sexual life should be abstinence, regular to the regular hospital to do the labor examination work. The normal birth and development of children and adolescents is of great importance to children and adolescents themselves, their families and even the society. Serious, meticulous and timely care and care for premature children and adolescents are essential.

Therefore, attention should be paid to premature infants, close observation, active treatment, and long-term follow-up, so as to detect long-term complications as early as possible, timely intervention and treatment, and improve the quality of life of premature infants.

3.12. Menstrual History

Nearly 48% of the female adolescent population surveyed had no history of menstruation, and nearly 15% of girls had a history of menstruation but had erratic cycles (**Figure 12**). Medical studies have shown that many of the causes of adolescent menstrual disorders are directly related to the pubertal process and are the result of pubertal maturation disorders, as well as factors that are only temporally related to puberty and are not directly associated with pubertal disorders. Except for a few patients with functional bleeding, the majority of adolescent girls with abnormal menstruation show amenorrhea. Bleeding abnormalities may occur in most disorders unrelated to pubertal maturation, some of which may also present as amenorrhea. The patient's ability to return to normal

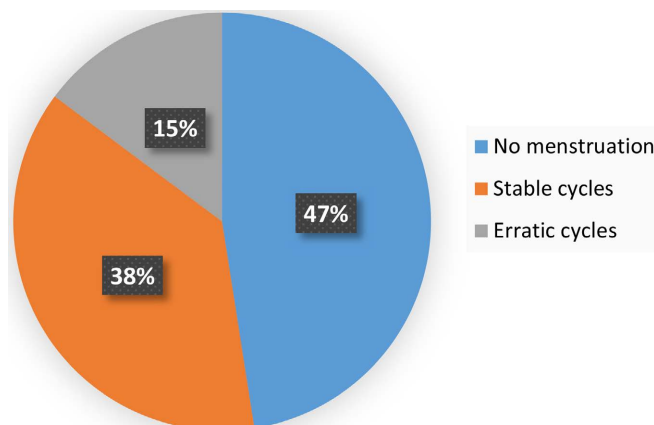


Figure 12. Menstrual history.

menstrual function after correction of the specific etiology has also been shown to be adversely affected. Furthermore, adolescent menstrual disorders have been associated with the incidence of future disease, mortality, and fertility. Therefore, how to improve the correct cognition of adolescent menstruation and correct prevention and timely treatment of gynecological diseases is an urgent problem to be solved by medical staff and science popularization workers. Adolescents are in urgent need of adolescent knowledge education. Adolescent students should have professional channels such as physiological health classes to obtain scientific adolescent health knowledge, which is of great significance to promote the physical and mental health of adolescents.

4. Discussion

With the popularization of medical technology informatization, digital health intervention technology has expanded the coverage of health care services and optimized the service quality. For example, health workers can use this technology to communicate specifically with patients to identify their needs and then intervene in the most appropriate way. At the same time, digital intervention technology can also help health workers to achieve telemedicine consultations, thus improving medical efficiency and reducing time costs.

With the advent of the new media era and the gradual popularization of “Internet plus health”, people’s demand for their own health monitoring and remote guidance increased sharply during the epidemic. In response to the “Healthy China Action”, this project uses the Internet cloud platform to conduct intelligent statistics and analysis of the health status of adolescents and children, in order to use the big data platform to guide the healthy life of relevant people in a comprehensive, real-time and complete way and simplify the medical treatment process. Through the Internet real-time management of basic information, examination data, medical history and cases, clinicians can reduce the consultation process, understand the basic information of children more intuitively and comprehensively, and provide help for clinicians in the diagnosis and treatment process. At the same time, through the data recording, the clinician can still query the medical record through the small program at the next visit of the patient, so as to realize the disease tracking and provide convenience for the disease follow-up. At the same time, the method of graph, radar chart and other methods can be used to achieve online guidance on the Internet as far as possible, reduce cumbersome steps, and achieve better implementation guidelines for healthy life of adolescents and children. At the same time, this paper used the data obtained in clinical practice to analyze the health status of K-12 population in this region, and to carry out targeted medical services.

The development of online medical platform can provide scientific methods and convenient platform for improving national health awareness, provide real-time, convenient and high-quality services for the convenience of the people, continuously meet the needs of K-12 people for medical and epidemic

prevention and care, and play a huge role in improving medical experience and alleviating doctor-patient conflicts.

5. Conclusions

In this article the researchers surveyed allergy history, family history, disease history, food, drinking water discharge spirit, menstrual circumstance factors such as the comprehensive analysis of birth, and the basic situation of the general public and common problem for master and provide advice, for outpatient doctor quickly understand the patient basic conditions to build the foundation, at the same time for the patient's own body and mental health system and comprehensive assessment, It can screen out the risk factors of clinical significance, so as to reflect and guide how to improve the health status of children and adolescents aged 3 - 18 years and the problems needing attention from family, school and hospital.

With the in-depth promotion of the Healthy China strategy, the current child health management model has been unable to meet the development needs of physical and mental health of Chinese children in the new era, and the child health management is facing new challenges in top-level design, institutional arrangement, technical means and other aspects. It has become an urgent requirement to improve the family and society's attention to the health status of children and adolescents, develop a child health management system suitable for China's national conditions, and comprehensively improve the physical and mental health of Chinese children.

This paper is dedicated to use big data platform, comprehensive, real-time and complete scientific guiding people health life, by examining the data and case history of the Internet for real-time management, convenience and seeing a doctor again, at the same time as much as possible by using the methods of graph, entirely do Internet online guidance, derate cumbersome steps, achieve better implementation of child and adolescent health life guide. This paper provides a new idea for online health management, monitoring and medical treatment. However, the cloud platform still has some shortcomings: will it be able to provide services to more teenagers, children, infants and even adults in other regions in the future? How effective will it be? Can it be adopted and applied to more hospitals and other places? Can the security and confidentiality of private information be ensured? These questions still need further thinking, research and exploration.

Authors' Contribution

Chen Peng, Wei Chen, Yishi Wu¹, Yuanbo Huang, Anruo Tang conducted the literature search, data extraction and manuscript drafting. Jinlan Zhang conceived the study and supervised the entire process of the study. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] National Health Commission, Propaganda Department of the CPC Central Committee, Civilization Office of the CPC Central Committee, Cyberspace Administration of the CPC Central Committee, Ministry of Education, Ministry of Civil Affairs, Ministry of Finance, State Administration of Radio, Film and Television, Office of the Women and Children's Commission of The State Council, Central Committee of the Communist Youth League, All-China Women's Federation, China Customs Work Commission. Mental Health Action Program for Children and Adolescents. Chinadaily.com.cn, 2019-12-18.
- [2] General Office of the National Health Commission, Ministry of Education, General Office of the State Administration of Market Regulation, General Office of the State Administration of Sports, General Office of the Central Committee of the Communist Youth League, General Office of the All-China Women's Federation. Implementation plan for Prevention and Control of Obesity in Children and Adolescents. Chinadaily.com.cn, 2020-10-23.
- [3] Chinese Nutrition Society (2021) Dietary Guidelines for Chinese Residents: A Scientific Research Report. Chinese Nutrition Society, Beijing.
- [4] The State Council Information Office (2020) Report on Nutrition and Chronic Diseases of Chinese Residents. Press Conference of the State Council, Beijing.
- [5] Chen, H. (2020) Healthy China Starts from Children and Adolescents' Health. *Chinese People's Political Consultative Conference*, 26 May 2020.
- [6] Lan, L., Zheng, F., Chen, H., et al. (2021) Research on the Health Promotion Path of Children and Adolescents under the Background of Healthy China. *Contemporary Sports Science and Technology*, **11**, 213-215.
- [7] Lu, W.Q. and Huang, Z.C. (2021) Prospects, Dilemmas and Countermeasures of Child Health Management from the Perspective of Healthy China. *China Primary Health Care*, **35**, 5-8.
- [8] Huang, G.M. and Zhang, T. (2021) Impact of Big Data on Children's Health Management. *China Maternal and Child Health Care*, **36**, 1453-1456.
- [9] Department of Maternal and Child Health, National Health Commission (2021) Interpretation of the Healthy Children Action Promotion Plan (2021-2025). Official Website of National Health Commission of the People's Republic of China, 2021-11-05.
- [10] Wen, B., Liu, J.Y., Dong, B., Ye, J.L. and Ma, J. (2021) Investigation and Analysis of Health Problems among Children and Adolescents in China. *Chinese Journal of Health Information Management*, **18**, 21-26.
- [11] Wu, J.G., Zhuang, Z.J., Niu, C.J., Tang, C.X., Lu, G.L. and Xu, H.P. (2010) Cross-Sectional Study on the Influence of Indoor Environmental Factors on Respiratory Diseases in Children and Adolescents. *Chinese Journal of Preventive Medicine*, **11**, 450-454.
- [12] Zhang, B.B., Wei, W., Bai, Y., Hu, F.Z. and Huang, W.Z. (2021) Current Status and

- Prospect of Health Management in Adolescent Diabetes Patients. *Chinese Nursing Education*, **7**, 664-668.
- [13] Jia, C.Y. (2021) Analysis of the Relationship between Family Factors and Aggressive Behavior in Children and Adolescents. *Chinese Health Standard Management*, **12**, 27-29.
- [14] Huo, J.Z. and Yuan, D.L. (1995) Family Environment Is an Important Factor Affecting Psychological Behavior of Children and Adolescents. *China School Medicine*, **9**, 72-74.
- [15] Deng, X.M. (1989) Investigation on Knowledge of Menarche in Female Adolescents. *School Health*, **10**, 54.
- [16] Zhang, X.H. and Chen, X.Z. (2021) An Analysis of the Influence of Family Emotional Factors on Psychological Crisis of Children and Adolescents. *Journal of Jiangsu Second Normal University*, **37**, 62-67.
- [17] Zhu, K.W., Zhao, L., Xu, L.Y., et al. (2021) Application Progress of Digital Health Intervention in the Management of Diabetes in Children and Adolescents. *Evidence-Based Nursing*, **7**, 324-328.
- [18] Yang, L.J., Qin, J.H., Xu, C.H., et al. (2016) Effect of Systematic Health Education on Health Status of Preterm Infants. *Modern Diagnosis & Treatment*, **24**, 4693-4694
- [19] Author (2022) A Comparative Study of Family Education between Single Child and Non-Single Child in Junior High School in China. *Journal of Heilongjiang Teachers Development College*, **41**, 79-84.
- [20] Lai, W.Q., Huang, G.L., Huang, K.M., et al. (2012) Analysis of Health Status and Influencing Factors of Late Preterm Infants. *Clinical Medical Engineering*, **19**, 1267-1268.
- [21] Peng, D.L. and Zheng, Y. (2012) Observation and Analysis of Health Status of Late Preterm Infants. *Xinjiang Medicine*, **42**, 72-74.
- [22] Yu, X.M. and Gao, S.Y. (2004) Relationship between Family History of Allergy and Allergic Diseases in Infants. *Chinese Journal of Hemorheology*, **14**, 618-623.
- [23] Duan, X.Y., Li, M., Qi, Z.G., et al. (2022) Relationship between Family History and Behavioral Risk Factors of Hypertension and the Prevalence of Hypertension. *Chinese Journal of Public Health*, **38**, 172-176.
- [24] Li, M., Qi, Z.G., Gu, Y.J., Zheng, H.Y., Ge, Q.-W., Qin, G., Wang, Y.-C., Wang, Y.-Q., Chu, M.-L. and Zhuang, X. (2021) Interaction between Family History of Diabetes and Dyslipidemia on the Risk of Diabetes Mellitus. *Chinese Center for Disease Control and Prevention*, **25**, 300-305.
- [25] He, C.X., Chen, W.F., Xu, S.Q. and Huang, Y.S. (2019) Application of Nutrition Guidance Based on Health Belief in Children's Diet Intervention. *Shenzhen Journal of Integrated Traditional and Western Medicine*, **29**, 191-192.