



# Building the mental health management system for children post COVID-19 pandemic: an urgent focus in China

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## Background

The outbreak of coronavirus disease 2019 (COVID-19) at the beginning of 2020 was considered a threat to global health security [4]. The World Health Organization (WHO) has declared COVID-19 as a global epidemic [9]. Following home quarantine, unemployment, or other social problems, this global epidemic led to panic-stricken societies and turmoil [16]. This stressful event (COVID-19) may show a long-lasting impact on mental health [11, 15]. Notably, the mental health of children and adolescents has been affected substantially during the outbreak of COVID-19. In 2015, 17.6% of the pupils aged 6–16 years had at least one mental disorder [2]. In contrast, during the COVID-19 outbreak, an online survey reported the prevalence of depressive symptoms was 43.7% among Chinese high school students [18], thus suggesting an increase in mental disorders.

In China, most parents were unable to identify the mental health problems of their children early due to the lack of public awareness for children's mental health [3]. Even if they identify the mental health problems, they do not know how to get mental health services for their children, and how to help their children as their parents [10].

Therefore, China needs to pay more attention to establishing a solid mental health care system for its children.

## The mental health impact of COVID-19 on children

To estimate the impact on children, we extract referral data between January 1, 2019, and December 30, 2020, from the Computer-based Patient Record System in Beijing Children's Hospital. The total number of identified patients (only the outpatients from the department of psychiatry) in 2019 and 2020 were 42,831 and 36,944, respectively. The lower rate in 2020 is due to a sharp decline in the number of outpatients during the first and second quarters of 2020, potentially as a result of the impact of COVID-19 and in particular home confinement. But upon control of the COVID-19 epidemic in China, the number of outpatients increased substantially in the third and fourth quarters, (Fig. 1).

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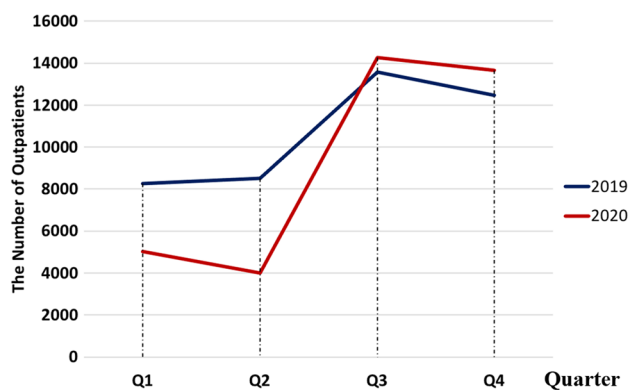
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**Fig. 1** The outpatient amount of Department of Psychiatry in Beijing Children Hospital in 2019 and 2020

### Main challenges for improvement of the mental healthcare system for children in China

Four main issues need to be addressed: firstly, the scarcity of child and adolescent psychiatrists is the foremost challenge in China. There are less than 500 full-time child psychiatrists in China [17]. Secondly, the child psychiatrist training program needs to be improved. In the first stage of the resident standardization training program for general psychiatrists, there is no training scheme specifically for child and adolescent psychiatry [1]. In the second stage of the psychiatrists' training program, only three months may be spent in child and adolescent psychiatry [14]. Thirdly, the mental healthcare system for children needs further development requiring collaboration at all levels of society, including schools, communities, hospitals, the regional Center for Disease Control and Prevention, and the local government [5, 6]. However, difficulties still exist in implementing various policies and related activities due to the lack of cooperation and coordination among different institutions and organizations.

Additionally, the left-behind experience represents a significant risk factor for mental health problems [7]. Left-behind children show a higher level of anxiety and depressive symptoms than those who live with their parents [13]. Due to the lack of mental health services, rural health centers face difficulties identifying individuals with mental disorders at an early stage [8].

### Building a “Top-down” and “Bottom-up” mental health care system for children and adolescents in China

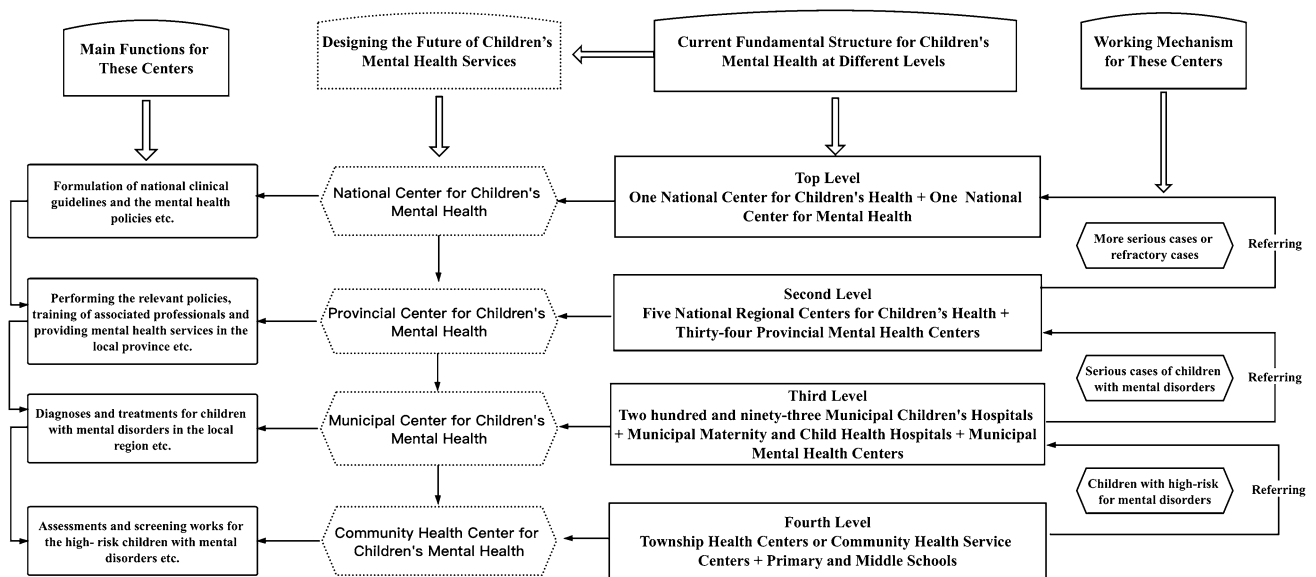
Based on the current status and challenges related to childhood mental health in China, we provide a framework for a “Top-down and Bottom-up” mental health care system for children, which has the potential to address current challenges.

It is a four-level model. The top-level is one National Center for Children's Health and one National Center for Mental Health, which are mainly responsible for the involvement of China in international research, formulation of national clinical guidelines, the establishment of a national training system for child psychiatry, and mental health policies. The second level consists of five National Regional Centers for Children's Health and 34 Provincial Mental Health Centers. Centers within this second level mainly break down and execute relevant policies and guidelines for childhood mental health issues at the top level, thereby establishing an effective working system to train the associated professionals and addressing mental health services in regional provinces. A total of 879 municipal medical institutions (including municipal children's hospitals, municipal maternity, and child health hospitals, and municipal mental health centers) will serve as the third level's basic framework, mainly responsible for the diagnosis and treatment of childhood mental disorders in local regions. A great number of primary medical care centers (including township health centers or community health service centers) and mental health centers in the primary/middle schools form this system's fourth level. The fourth level's main function is to perform the screening of high-risk children and assessments of children with mental disorders.

The referral system for children with mental disorders follows the bottom-up strategy. In brief, children can get their mental health services from the fourth level as a start to the end of the top-level corresponding to varying degrees of demand (Fig. 2). Notably, the Beijing Children's Mental Health Center has been approved by the Beijing government. It serves as a model institution for children's mental health centers in other cities.

### The features of this four-level model

Paying more attention to the assembly of a mental health care system is the consensus of global experts, particularly for childhood and adolescent mental disorders [12]. Countries have come up with different systems for the



**Fig. 2** The “top-down and bottom-up” model for children’s mental health in China

organization of mental health care systems for children and adolescents. Western developed countries established psychological service system earlier than China. For example, the US National Institute of Mental Health established the Child and Adolescent Service System Program in the 1990s, which is worthy of our learning and reference, especially for the perfect primary mental health care system [12]. Notably, most children’s mental health centers, clinics and communities in the US are private rather than official, while China’s system is mainly dominated by the government bodies, emphasizing the effective coordination among various institutions related to children’s mental health to improve efficiency. It may provide a different framework for other countries to establish relevant systems. In the present letter, the framework will show the following features:

Firstly, government-led national strategies and supports are crucial to ensure adequate medical resources based on China’s existing hierarchical health care system. Once children’s mental health centers at different levels are developed in the future, these centers will take charge of this leading role to guide different components of this management system.

Secondly, screening, diagnosis, intervention, and referral can be achieved at different levels of this system by a bottom-up strategy.

Relying on developed telemedicine in China, we can complete the diagnostic and treatment programs in rural areas effectively and perform the training and guidance programs at different levels of this system promptly. It can effectively and cheaply solve problems and facilitate mental healthcare for children, especially in rural and remote areas.

Moreover, public awareness of childhood mental health issues needs to be continuously promoted. Parents should have the ability to identify the mental health problems of their children and actively manage mental health problems. All levels of this system will strengthen public awareness of children’s mental health.

Finally, the child mental health professionals union in China is developing. It should be emphasized that workers at the fourth level of this management system are mainly the general practitioners/paediatricians at community health centers or psychologists who work at primary/middle schools. At the third level, mental health professionals are mainly psychiatrists and pediatric health professionals at the regional level. At the second level, professionals mainly include psychiatrists and child psychiatrists in provincial mental health centers and pediatric health professionals in the provincial maternal and child health care system. Professionals at the first level include the childhood experts on mental health from the national mental health centers and national maternal and child health centers. All of these professionals mentioned above form the “Child Mental Health Professionals Union”, which is a good solution to the shortage of child psychiatrists in China.

## Conclusion

There is still a long way to develop a Chinese childhood mental health service system. The impact of the COVID-19 pandemic on children’s mental health has boosted the necessity to establish the system. In this article, based on China’s existing medical system, we have explained the top-down

and bottom-up mental health care management system to address urgent mental health requirements of children. It will provide a framework for the government to formulate childhood mental health development plans in the future. By paying attention to children's mental health in China at the societal level, this system will gradually improve and develop in the future.

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## Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

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