Study on the Prevention and Strategy of Disability in China

Chen Gong
Associate Professor, Peking University

Cui Bin
Lecturer, Peking University

Zhang Lei
Lecturer, Peking University

Abstract

This research aimed at studying the prevalence and risk factors of disabilities in different population, which through the analysis of the data from the Second National Sampling Survey on Disability in China. The characteristics and high-risk causes of congenital disabilities and acquired disabilities will be analyzed, as well as the determinant factors of both types. Strategy and feasible intervention measures for disability control and prevention according to various high-risk causes of disabilities will be put forward. The results indicated that the prevalence and causes were different at different age, thus the risk of disability exists throughout the whole life. Therefore, the prevention of disability should be a life-long concept. According to the disability prevention strategy of WHO and the status in quo of the prevalence and causes of the disabilities in China, the following measures should be taken in China’s disability prevention: 1. Transform the understanding of disability and strengthen the macro planning of disability prevention. 2. Give priority to primary prevention. 3. Set community as the basic unit of disability prevention. 4. Establish non-risk environments. 5. Strengthen people’s health awareness and decrease the exposure in the risk of disability. 6. Strengthen the disability control and prevention in high-risk population.

Keywords: Prevalence of Disability; Causes of Disability; Disability Prevention

Acknowledgments

The research was supported by the program from China Disabled Person’s Federation, National “973” project on Population and Health (No. 2007CB5119001), National Yang Zi Scholar Program, 211 and 985 projects of Peking University (No. 20020903). The authors sincerely thank all organizations for the supports to this program.

Background

Population and development is one of the global concerned issues in the twenty-first century. A people-oriented sustainable development model that seeks the equilibrium of population, resources, environment, economy and social development has become the common goal of whole human society, while the issue of population plays a key role in the sustainable development.
With fast development of society and economy, the health status of Chinese population had greatly improved in the past half century. The Chinese people are now living healthier and more comfortable, and are more productive. However, China is also confronted with greater scale of disability with multiple and complex causes. According to the Second China National Sample Survey on Disability, there are about 82.96 million disabled persons in China in 2006, which is 6.34% of all Chinese population. Furthermore, the large ageing population, the increase of chronic diseases and accidental injury accelerate the expanding of disabled population.

Disability, especially those induced to severe functional impediment, will result in great socio-economic and psychological burden for the individual, their family, as well as the society and the country. It will also have great impact on population accomplishment and human capital. However, disability is not doomed to occur and unable to control. According to a WHO report, at least 50% of total disability could be controlled or delayed with current technologies. The development of modern technology provides strong technical support for disability prevention, which has become an important objective of public health and a primary means to improve population quality for all the countries in the world, including China.

Objective

This research aimed at studying the prevalence and risk factors of disabilities in different population, which through the analysis of the data from the Second National Sampling Survey on Disability in China. The characteristics and high-risk causes of congenital disabilities and acquired disabilities will be analyzed, as well as the determinant factors of both types. On the basis of the status in quo of disabilities in China and the experience of international disability prevention, the strategy and feasible intervention measures for disability control and prevention according to various high-risk causes of disabilities will be put forward.

The key problems to be solved by this research are:

1) To study the prevalence and risk factors of disabilities in different population in China
2) To explore the high-risk causes of China’s disability
3) To put forward feasible strategy and intervention measures for disability control and prevention

Methodology

Theory and methodology of demography, epidemiology, statistics, prevention medicine and public policy analysis were used in this research, combining the quantitative and qualitative research methods. The statistical analysis to the data of the second national sampling survey on disability in China is pursued to describe and compare the epidemiological characteristics of disabilities.

Results

1. Categories of disability and classification of the causes

Disability is the functional consequence of an impairment and/or change in body because of diseases and accidents, which bereaves part or all of the ability to live, work and study as a normal individual and limits one or more of the major life activities and social activities. The disability can use different criteria for the classification according to different research purposes. The disability can be categorized as visual, hearing, physical, speech and intellectual disability by body structure; or as psychological, physical and organic disability by characteristics of the disability; or as congenital and acquired disability by causes of disability. In the Second China National Sample Survey on Disability, the disability classification is by body structure, including visual, hearing, speech, physical, intellectual and psychiatric disability. The multiple disability is defined as one with two or more disabilities combined.

The three major reasons for the disability are concluded, which are inherited & heteroplasia, environmental & behavioral and diseases & injury. The three factors interacting with each other cause congenital disabilities and acquired disabilities. The congenital disabilities include inherited disability and hypogenetic disability, the acquired disabilities include disability caused by infective disease, injury & hurt and non-communicable diseases (such as...
physical disease, psychological disease and malnutrition), as the following picture shown. According to the above criteria, the data analysis on the reasons of disability was done using the data from the 2nd National Disability Sampling Survey.

2. Prevalence and trends of the disabilities in China

1) Prevalence

Data were obtained from the Second China National Sample Survey on Disability in 2006 with sampling of 142,112 households and 161,479 individuals with visual, hearing, speech, physical, intellectual and psychiatric disability and multiple disabilities. As a whole, the prevalence rates of the physical, hearing and visual disability were higher than that of the speech, intellectual and psychiatric disability. And the prevalence rate of the multiple disabilities is relatively higher (Fig.1).

Fig. 1 Classification for congenital disability and acquired disability

2) Trends

Fig. 2 The proportion of each disability categories (2006)
Compared with the data in 1987, the total prevalence rate of disability was higher, and the distribution of different disability categories had changed. Based on the disabled population classification in 1987, the prevalence rate of physical and psychiatric disabilities had greatly increased, the prevalence rate of visual and multiple disabilities had slightly increased, but the prevalence rate of the speech and intellectual disabilities had dropped.

Ranking the provincial prevalence level of disability in China, the prevalence rates of disability in 7 provinces were over 7%, which were Sichuan, Guangxi, Hebei, Gansu, Henan, Jilin provinces and Tibet Autonomous Region descending sorted. The prevalence of disability were less than 6% in following 9 provinces which were Shanghai, Xinjiang, Liaoning, Tianjin, Qinghai, Heilongjiang, Anhui, Guangdong and Hainan (ascending sorted). It showed that the areas with higher disability prevalence ranking in the corridor from Tibet, Sichuan, Henan to Hebei.

2) Prevalence and distribution of disabilities with different characteristic

The study showed the characteristics of the prevalence and distribution with disability as follows:

The prevalence rate of physical and hearing disability for male were higher than the female, while the prevalence rate of visual, psychiatric and multiple disabilities were lower than that for female.

For speech and intellectual disabilities, the group aged 0-4 shared the highest prevalence rate; for visual and hearing disabilities, the group aged 65 and over shared the highest prevalence rate, and for psychiatric and physical disabilities, the working age group (15-64) shared the highest prevalence rate.

For each type of disability, the prevalence rate was different in different region. The middle reaches of the Yangtze River and the southwestern region had the highest prevalence rate of visual disability. The eastern coastal areas had the highest prevalence rate of hearing disability, while the northwest area had the highest prevalence rate of speech disability. Northeast area accounted for the highest prevalence rate of physical disability. The middle reaches of Yangtze River accounted for the highest prevalence rate of the intellectual disability, while the southern coastal areas and the eastern coastal areas accounted for the highest prevalence rate of psychiatric disability. The southern coastal areas accounted for the highest prevalence rate of multiple disability.

The prevalence rate of each type of disability in urban area was lower than that in rural area, as well as the multiple disability.

Using the Lorentz curve to analyzing the prevalence of disabilities with different income, it was found that the Lorentz curve is above the diagonal curve, which indicated the unfair income among all types of disability. Within all the disabled persons, the proportion of the low income was higher than that of the high income. It also indicated a negative relationship between the prevalence of disability and the income.

3. Analysis of high-risk factors of disabilities

1) Inducing factors of disabilities

Separating the multiple disabilities into six categories of disabilities, congenital disabilities accounted for only 9.57%, while acquired disabilities accounted for 74.67%. It indicated that the acquired disabilities were the major cause of disabilities. In the congenital disabilities, the hypogenetic disability accounted for the highest percentage of 68.91%; and in the acquired disabilities, the non-communicable diseases accounted for the highest percentage of 71.58% (Fig.3).
2) Age characteristics of different disability categories

Age is an important indicator which can reflect the characteristics of the disabilities. Different disability category has its own age characteristic.

According to the result of the data analysis, about 60% of the speech and intellectual disabilities occurred in the population group aged 0 to 4 years old, but few of them were found in the group aged 5 to 19; the psychiatric and physical disabilities more likely happened in the group aged 15 to 64 years old. The visual and speech disabilities occurred more often in the group aged 65 and over (Fig.4).

Analyzing by gender, most of the male encountered the disabilities in working age (15-64) or education age (5-19), but the female usually in the retirement age (65 and over).

3) Causes of disabilities

Most of the disabilities were acquired disability, and the congenital disability only accounted for 18.36%.
For intellectual and speech disabilities, the main reasons were congenital and hypogenetic factors. The proportion of the non-communicable diseases was higher in visual, hearing and psychiatric disabilities. In physical disability, the disability caused by trauma and injury accounted for nearly 30%, much higher than other reasons.

The proportion of the two congenital disabilities (including the hypogenetic and inherited disability) in northwest region was the highest among all the regions. The proportion of acquired disabilities caused by non-communicable disease in northern coast area, eastern coastal area and southern coastal area were the top three highest. The proportion of disability caused by infective disease in the middle reaches of the Yangtze River and northwest region were higher than the other regions. The proportion of disability caused by trauma and injury in southwest region, the middle reaches of the Yangtze River and northwest region were much higher than the other region.

The proportion of the disabilities caused by inherited diseases and the infective diseases in rural area was higher than that in urban area, while the proportion of the disabilities caused by non-communicable disease, trauma and injury in rural area was lower than that in urban area. Otherwise, the proportion of the disabilities caused by unknown reasons in rural was higher than in urban.

The proportion of the disabilities caused by trauma and injury for male was higher than for female. The proportion of the disabilities caused by non-communicable diseases for male was 10% lower than for female, and the proportion of the disabilities caused by other reasons (not listed in the questionnaire) except the non-communicable diseases for male was higher than for female.

Different people with different ages are facing different risk of disabilities. The congenital disabilities usually occurred before birth. The infective diseases often affected the people who in school age (5-19). Trauma and injury were the high disability risk factors for working age population (15-64). Non-communicable disease, especially chronic diseases was the high risk factors for the elderly (65 and over) who face to disability (Fig.5).

Discussion and conclusions

1. Summary: Characteristics of the causes of disabilities in China

Concluded the analysis above, the following characteristics of the causes of all the disabilities in China showed as:
(1) The prevalence of the disabilities was quite high and the distribution of disabilities categories had changed. Based on the disabled population classification in 1987, the prevalence rate of physical and psychiatric disabilities had greatly increased, the prevalence rate of visual and multiple disabilities had slightly increased, but the prevalence rate of the speech and intellectual disabilities had dropped greatly.

(2) Among all the disabilities, the congenital disability accounted for 10%, while the acquired disabilities accounted for nearly 75%, which meant the disabilities are mainly caused by the acquired factors. Among all acquired factors, non-communicable diseases accounted for the highest proportion, and it increasing as the age increasing.

(3) The distribution and the causes of disabilities was significantly different among different regions, between rural and urban areas and different gender.

(4) Different people with different ages are facing different risk of disabilities. The congenital disabilities usually occurred before birth. The infective diseases often affected the people who in school age. Trauma and injury were the high disability risk factors for working age population. Non-communicable disease, especially chronic diseases were the high risk factors for the elderly who face to disability.

2. Prevention model and strategy of disabilities in China

1) Disabilities prevention model—lifetime prevention

Disabilities prevention is to take effective measures to prevent, control or retard disabilities with the enough information of disabilities. For every one and every household, disabilities prevention is throughout the lifetime and whole household. Data indicated disability occurs in different age, and everybody will experience disability at different age stage, so the effective measures should be taken to prevent disability according to age, disability categories and disability risk. The kernel strategy is a lifetime prevention, as shown below (Fig.6):

![Fig. 6 lifetime prevention of the congenital disabilities and acquired disabilities](image)

2) Strategy of disabilities prevention and control in China

Combining status and characteristics of disabilities in China with the tertiary prevention of WHO, the disabilities prevention strategies are put forward as the following:

Firstly, reform cognition of disability and strengthen the macro planning of disability prevention. Change the cognition of “medical rehabilitation-oriented” into “prevention”. Strengthen the macro planning of national disability prevention program and strengthen the social development planning with the disability prevention.

b. Give priority to primary prevention. Conduct investigation and research on the target population, find out the risk of disability and take measures to prevent disability or decrease the possibilities of disability.
c. Set the community as the basic unit of disability prevention. On the one hand, to train community workers on the importance of the disability prevention and relevant prevention techniques; on the other hand, to promote rehabilitation into a national basic community health services project.

d. Establish non-risk environments for disability. Decrease the disability under the extreme poor environments, high risk working environments and the environments with high psychological pressure.

e. Strengthen the health awareness and decrease the exposure in the risk of disability. It is the population strategy of disability prevention, which is with low cost and high social benefit. Using all kinds of ways and measures to make health education on the residents, especially on the key population, which make the knowledge and techniques of the disability prevention available to the masses and become a conscious action.

f. Strengthen the disability control and prevention in high-risk population. Different group of people has different prevalence of the disability and disability causes, and thus in different time and population; we should have different prevention and control strategy. As for different age stages, children disability should be focused on at the most. Prevention of congenital disability should focus on the childbearing age population to reduce the disabled infants born. Concerned with acquired disability, the prevention measures should be focused on controlling the non-communicable diseases, decreasing accidents to reduce the disabilities for diseases and injury. For different group of people, children should be focused on strengthening the injury and disability prevention and control of infectious diseases. The occupational population should be focused on occupational disability and psychiatric disability to reduce the disability at workplace. The elderly population should be focused on the prevention and treatment of non-communicable diseases.

We would like to extend our sincere thanks to the following colleagues for their great support:
Zheng Xiaoying, Song Xinming, Wu Jilei, Lin Yan

References


iii Office for the 2nd CSSD. Working Handbook of the 2nd CSSD, Page 15.