

Preplanned Studies

Regional Patterns of Disability and Their Relationship with Socioeconomic Conditions — China, 2006

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Summary

What is already known about this topic?

Understanding the regional distributions of disability is helpful for policymaking in precise disability prevention and control, especially in China. However, only a few studies have focused on the regional distributions of disability and their relationships with socioeconomic conditions, and almost all of them have ignored the variances of disability within provinces in China.

What is added by this report?

This research found that with the increase in the regional income level, the prevalence of disability showed a decreasing trend. The aging process of disability in high-income regions is more serious than that in other income level regions, and with the improvement of income level, the prevalence of disability in males declines rapidly.

What are the implications for public health practice?

The study analyzed the county-level distribution patterns of disability and their relationship with socioeconomic factors to provide a basis for implementing regional policies on disability prevention and control.

Disability is a part of the living condition of human beings, and almost everyone will experience temporary or permanent impairment at some stage of life (1). Although China has made remarkable achievements in disability prevention and control, the scale of disability is still increasing due to accelerated population aging and continuously increasing risks from chronic diseases (2). Implementing timely and effective control is important to postpone the rapid increase in disability, and locating the regional distributions of disability would be helpful for precise disability prevention. However, only a few studies have focused on the regional distributions of disability and their relationships with socioeconomic conditions in China,

and almost all of them have ignored the variances of disability within provinces in China (3–4). Our study analyzed the county-level distribution patterns of disability and their relationship with socioeconomic factors to provide a basis for implementing regional policies on disability prevention and control.

This study used the Second National Sample Survey on Disability (SNSSD) in China, covering 31 provincial-level administrative divisions (PLADs), 734 counties or districts, 2,980 towns or streets and 5,964 communities or villages in China, involving 2,526,145 participants. More details about the survey can be found elsewhere (5). Disability was identified by trained field interviewers with a structured five-item screening questionnaire developed according to the ‘Guidelines and Principles for the Development of Disability Statistics’ (6), and individuals who answered a positive response to the questionnaire were labeled as likely to meet the criteria for disability. Experienced specialists diagnosed the types of disability, which included visual disability, hearing disability, speech disability, physical disability, intellectual disability and mental disability. A county-level disability database was established after comorbidity rounds of quality verification based on county-level pooled data from the Second National Sample Survey on Disability in China. Stata (15.1, Stata Corp, College Station, TX, USA) was used for data analysis.

The average annual per capita income for participants was 4,261.44 CNY (standard deviation was 2,769.67 CNY), and the average prevalence of disability at the county level was 6.29%. With the increase in the per capita annual income at the county level, the prevalence of disability rate at the county level gradually decreased (Supplementary Figure S1, available in <http://weekly.chinacdc.cn/>).

The prevalence of disability among older adults aged 65 or above was the highest, and the lowest prevalence was in individuals aged 14 years and below regardless of the incomes of the areas (Figure 1A). Although high-income counties had the lowest prevalence of

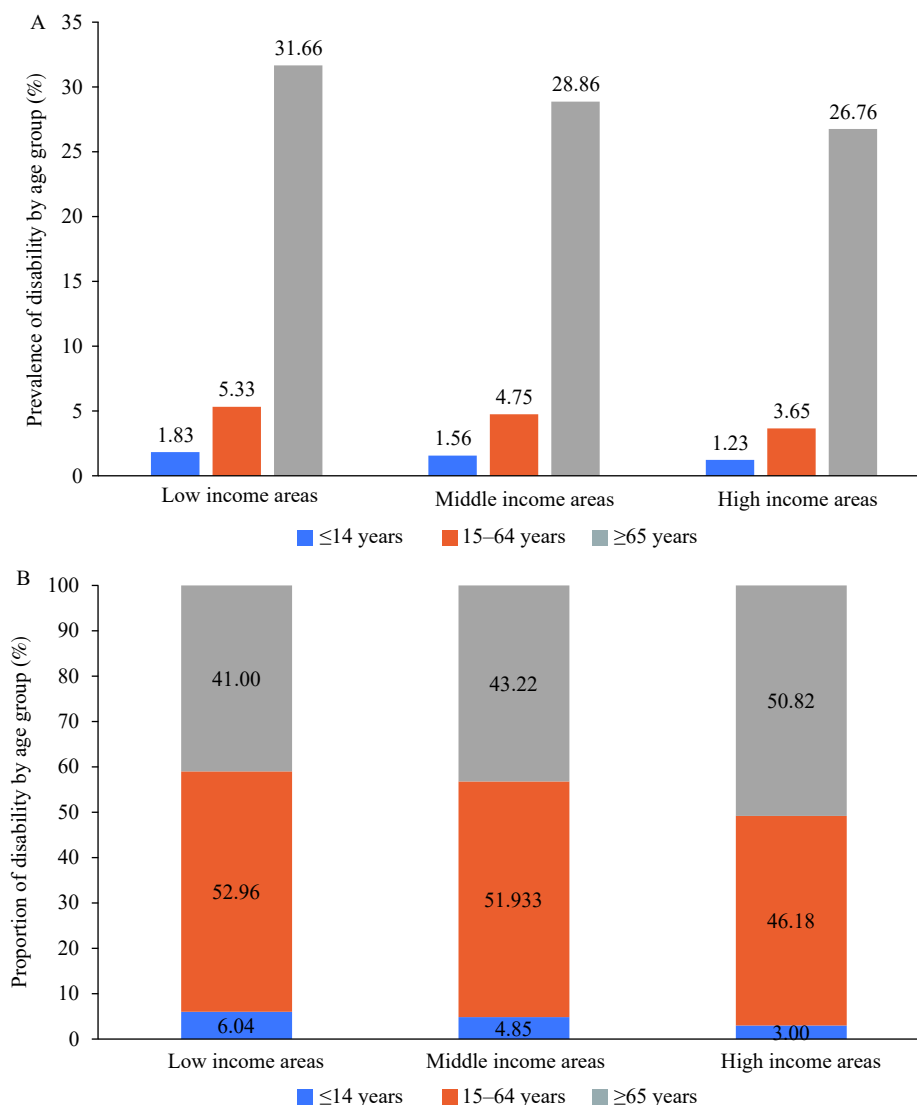


FIGURE 1. The prevalence and proportion of disability across counties with various incomes by age group. (A) Prevalence of disability; (B) Proportion of disability.

disability for older adults aged 65 years and above, the proportion of older adults with disability was the highest in the high-income counties (50.82%). The highest proportions of disability under 14 years of age (6.04%) and under 15–64 years of age (52.96%) were in low-income regions, and the lowest were in high-income regions (Figure 1B).

The prevalence of disability for both males and females in low-income areas (males: 7.03%, females: 6.72%) was higher than that in middle-income (males: 6.55%, females: 6.32%) and high-income areas (males: 5.96%, females: 5.81%). Moreover, in counties with a higher average income per capita, the prevalence of disability in males decreased faster than that in females (Figure 2A). Furthermore, the higher the income level of county areas, the smaller the difference in the

proportion of disability between males and females (Figure 2B).

The prevalence of physical disability in county was the highest (2.35%), and the prevalence of speech disability in county was the lowest (0.53%). Compared with people in low-income regions, middle- and high-income regions have a lower prevalence of physical disability (low-income regions: 2.64%; middle-income regions: 2.23%; and high-income regions: 2.16%), but the prevalence of hearing, visual, and comorbid disability was higher (low-income regions: 2.04%, 1.08%, 0.97%; middle-income regions: 2.13%, 1.33%, 1.02; and high-income regions: 2.15%, 1.44%, 1.10% for hearing, visual, and comorbidity disability, respectively) (Figure 3A). The proportion of visual, hearing and comorbid disability in high-income

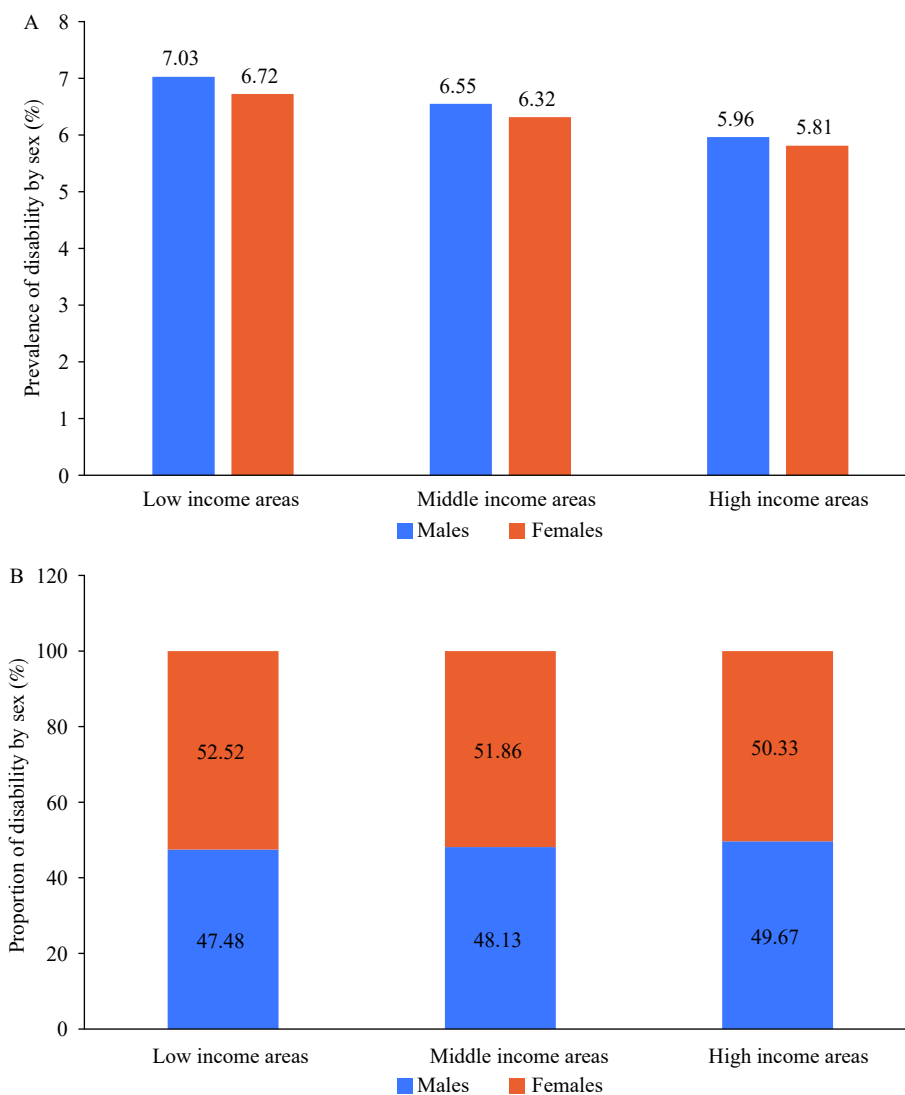


FIGURE 2. The prevalence and proportion of disability across counties with various incomes by sex. (A) Prevalence of disability; (B) Proportion of disability.

regions was higher than that in other regions, while the proportion of physical, mental, and intellectual disability in high-income regions was lower than that in other regions (Figure 3B).

Among the 0–4 years age group (N=479,581), the proportion of intellectual, hearing and visual disability was lower in high-income regions than in low-income and middle-income regions, (low-income: 37.91%, 15.43%, 17.32%; middle-income: 36.52%, 15.21%, 17.42%; and high-income: 32.85%, 15.10%, 16.85% for intellectual, physical and visual disability, respectively), while the proportion of comorbidity, physical, speech, and mental disability was higher in high income regions. Among people aged 15–64 years (N=1,795,812), the proportion of intellectual, hearing disability was lower in high-income regions than in

low-income and middle-income regions, while the proportion of comorbid disability, physical, mental, and visual disability was higher in low-income and middle-income regions. For people over 65 years of age (N=250,752), the proportion of hearing disability was similar in the 3 regions. The proportion of visual disability and comorbid disability was highest in high-income regions, and the proportion of mental disability intellectual disability and speech disability was highest in low-income regions (Supplementary Figure S2, available in <http://weekly.chinacdc.cn/>).

DISCUSSION

This study took the county level as the analytical unit and found that with the rise of the regional

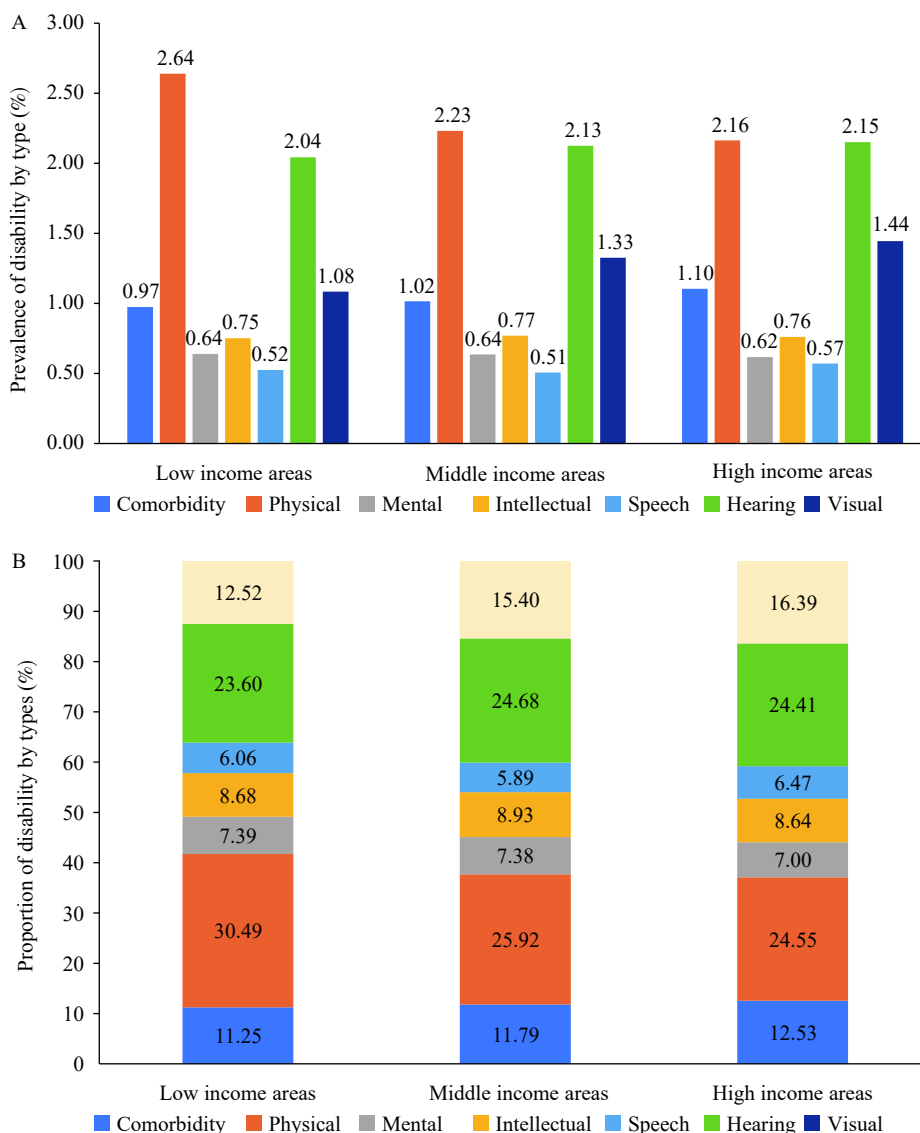


FIGURE 3. The prevalence and proportion of disability across counties with various incomes by type. (A) Prevalence of disability; (B) Proportion of disability.

income level, the prevalence of disability showed a decreasing trend. The increase in income for areas may help to improve people's health. People in areas with higher income levels have more opportunities to access better self-care and social services and a higher quality of life (7), so the prevalence of disability in the areas with high income is kept at a low level.

This study found that although the prevalence of disability among older adults in high-income regions is lower than that in other income regions, the aging process of disability in high-income regions is more serious than that in other income regions. This may be due to the longer life expectancy of people with disability in high-income regions. High-income areas have better service facilities, wealth, employment

opportunities, social support, and other resources, which can promote the improvement of individual health levels. In the sex heterogeneity analysis, we found that with the improvement of social and economic levels, the prevalence of disability in males declines rapidly. One of the possible reasons for this sex difference may be from the different compositions of types of disability in males and females. Compared with females, males may be at higher risk of physical disability, leading to the rapid decline in the prevalence of disability after the improvement of the regional economic level. Moreover, we found that a higher proportion of the types of aging-related disability (e.g., comorbid disability, hearing disability or visual disability) tended to be in high-income areas.

However, a higher proportion of the types of socioeconomic factors related to disability (e.g., physical disability) tended to be in low-income areas.

This study was subject to some limitations. First, few studies were available for comparison with our findings because it is the first to explore the regional distribution of disability at county-level. Second, findings from this study only can present a historical phenomenon because we used the survey data in 2006, which is the latest national sample survey about disability in China so far. Third, this study was an ecological study at the county level, and, therefore, it has the implicit limits of this design, and in the future, further study at the individual level should be taken. We used the Second National Sample Survey on Disability in China to detect the regional distributions of disability and its distributions across different counties with various socioeconomic conditions. We concluded that with the rise of the regional income level, the prevalence of disability showed a decreasing trend. The aging process of disability in high-income regions is more serious than that in other income regions, and with the improvement of income level, the prevalence of disability in males declines rapidly.

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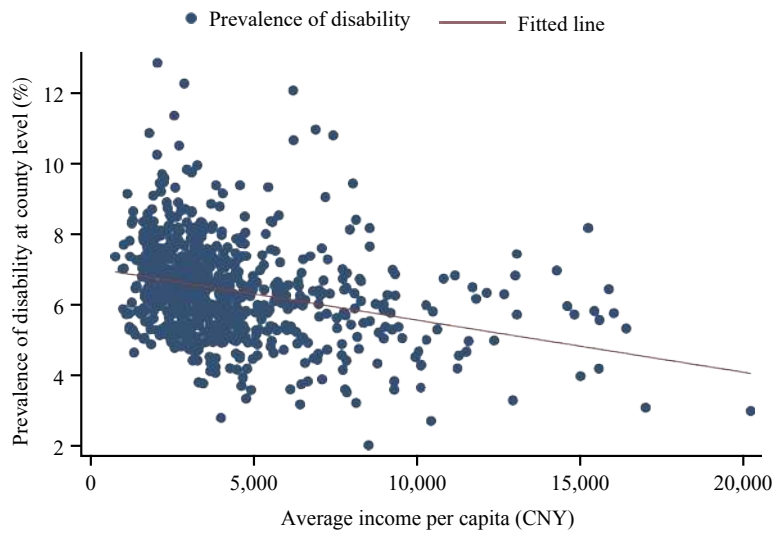
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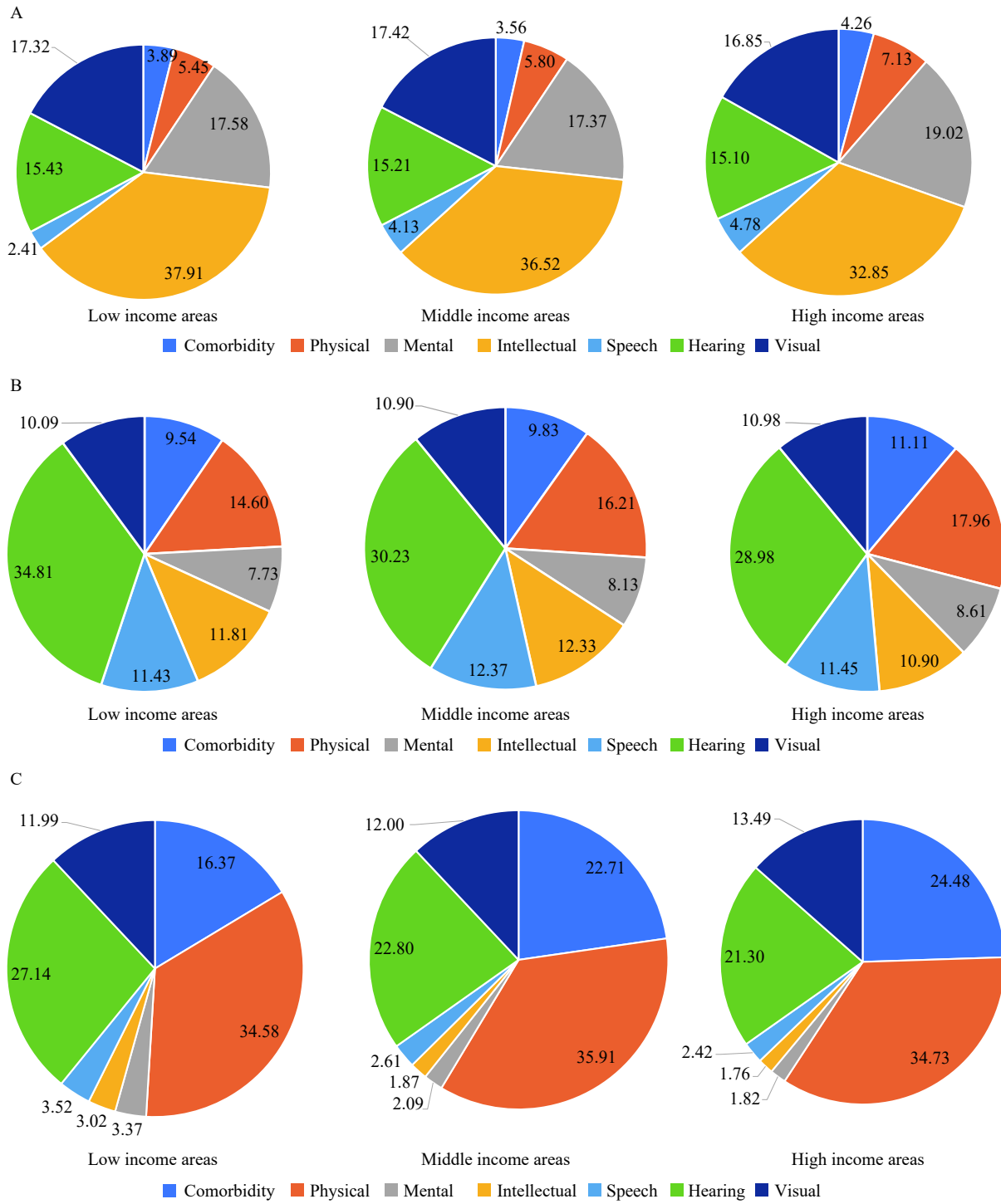
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SUPPLEMENTARY MATERIAL



SUPPLEMENTARY FIGURE S1. Scatter plot of the relationship between income and the prevalence of disability at the county level.



SUPPLEMENTARY FIGURE S2. The proportion of disability across counties with various incomes by age group and type. (A) 0–14 years old; (B) 15–64 years old; (C) ≥65 years old.