Research for health issues in mainland China—a growing need unaddressed

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Visual impairment in children is a common health issue in China, especially in rural areas where the use of spectacles is limited.[1] Visual impairment is a barrier to academic learning among children of school age.[2] Appropriate use of spectacles can reduce this barrier and motivate students academically. Although spectacles are a cost-effective and non-invasive remedy for visual impairment, their use is limited among school-age children in rural China.[3] In addition to suboptimal ownership, undercorrection or poorly fitted spectacles also contribute to the poor academic performance of these children.[4] Previous research has examined this topic among only elementary and lower secondary school students. Few studies have investigated the prevalence of visual impairment and spectacles ownership among upper secondary school students.

In this issue of *Hong Kong Medical Journal*, Zhao et al[5] report the results of their survey of 5583 students of academic and vocational upper secondary schools in northwestern rural China. The authors examined the prevalence of visual impairment and spectacles ownership, as well as the factors associated with spectacles ownership. The authors assessed the participants in terms of visual acuity, spectacles ownership, and demographic characteristics. The overall prevalence of visual impairment was high (72%, 4026/5583) among the population. The prevalence of visual impairment (75% vs 58%) and spectacles ownership (75% vs 35%) was higher in students in academic upper secondary schools than in those in vocational upper secondary schools. The ownership of spectacles was associated with less visual impairment, male sex, residence in urban areas, and attendance at academic upper secondary school. The implication is that comprehensive vision measurements should be implemented to enhance visual care among rural schools in China. In addition to lifestyle modifications, early identification of visual impairment is important to reduce its disease burden. Health promotion programmes can be organised to provide accurate and high-quality spectacles to those in need. The cost-effectiveness of such interventions requires further investigation.

China unveiled a health reform plan in 2009, intending to provide affordable and equitable health care for all Chinese citizens by 2020.[6] As a result, there was an increase in high-quality studies from China on various aspects of health science, including control on non-communicable disease, mental disorders, ageing population, maternal and child health, primary care, and health policy.[7] However, the growing need for healthcare research into visual impairment in children and other health issues among the underprivileged in China remains unaddressed.

With continuous deepening and broadening engagement in health issues, China has made great strides in healthcare and health science. The quantity and use of data have increased greatly in the past 10 years, particularly in healthcare research.[8] Data from the national identification system, the social insurance system, and other sources can now be linked and made available to health researchers. Big data from national surveys, observational studies, or large-scale multicentre studies present new opportunities to generate findings with implications for clinical practice and healthcare policy. Other national data sources, including the discharge summary of inpatients and the death registry, are also available for research purposes. Many health researchers have used these national datasets to evaluate the burden of non-communicable diseases.[9] A centralised and integrated database for precision medicine is also under development. This platform may contain relevant demographic data and biological samples collected from a large cohort. The platform will facilitate research for investigators to conduct nationwide, multicentre studies to address specific health issues, and enable researchers to

scale up interventions with evidence supported by cost-effectiveness analysis. Academic institutions in China are also pioneering data sharing programmes, including standardised and individual participant data for data harmonisation, performance of meta-analyses, generation of new cohorts, and validation of disease-based dataset.[10] This progress enables China to identify and address the most important health issues more efficiently. The rapid development of health research in China might be attributable to several factors. China's economic development over the years has provided ample funding for conducting health-related original studies. In 2017, China's expenditure on research and development summed to 1.8 trillion RMB (US$260 billion), making it the second highest globally.[7] Extensive international cooperation is another important contributing factor to the research development in China. Increasing numbers of Chinese researchers have joined different international, collaborative research networks. These exchange platforms and processes have provided opportunities for high-quality research to be conducted in China. Recently, promotion of the application of big data in health research is a national priority to improve healthcare in China.[11]

Despite the progress made, conducting health research in China remains challenging. As an interdisciplinary field, health research requires attention and efforts from experts in various disciplines, who should communicate and identify needs to facilitate health research. Electronic medical records such as administrative databases are currently primarily used for clinical practice rather than research. The accessibility and quality of the data has remained suboptimal. They contain mostly unstructured data and much missing information. Furthermore, use of individual electronic medical records has been limited by the incompatibility of systems between different hospitals.[12] To tackle these issues, medical authorities, hospitals, and other stakeholders must agree on how to strengthen data exchange and compatibility between organisations. In terms of health topics, there are huge research gaps in the quality of health care, control of chronic diseases, efficiency in health delivery, control of medical expenditures, and public satisfaction to health services.[13] To reduce the increasing public health burden induced by the ageing population, it is necessary to build a primary healthcare–based delivery system, to improve the quality of healthcare providers, and to educate the public on the importance of disease prevention and health maintenance.

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