stand patients' and stakeholders' perspectives on digital health systems, to maximize implementation. We achieved this in Actissist[3] by holding quarterly meetings with an expert reference group comprising patient representatives and other stakeholders, who were actively involved in all aspects of trial design and app development. We also integrated extensive qualitative work with patients and other stakeholders from before the trial commenced right through to trial exit interviews post follow-up.

Finally, from a global perspective, there is a need to address the exclusion of low-income individuals who cannot access the technology necessary to run digital health tools. Evidence-based digital systems should be a health care cost covered by routine processes, rather than billed to patients. The digital divide also relates to staff using digital systems in the health care context. In our qualitative work, staff often described concerns about their own ability to use technology as well as lack of confidence in the ability of health services to successfully implement a coherent and fully integrated digital system, highlighting the need for all individuals using mental health services and those delivering services to be fully trained and supported[6].

One final consideration is the lack of theory-driven work underpinning apps being developed across the health setting. It is through theoretical development and innovation that we advance our discipline.

Each of the challenges set out above will need significant programmes of research, considering not only methods of evaluating digital health interventions, but also drawing on implementation science principles. Taken together, these challenges define a prioritized research agenda for digital health interventions for mental health. The promise shown in this field will only be turned into significant progress through multi-disciplinary working.

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Rethinking progress and challenges of mental health care in China

The rapid socio-economic development and extensive public health reform in China has led to considerable changes in the mental health service system, as previously described[1,2]. However, an update on the recent progress and challenges is now warranted.

Due to various reasons, China has faced major deficits in mental health resources in the past decades. For example, in 2004 there were only 16,103 licensed psychiatrists and psychiatric registrars (1.24 per 100,000 population), 24,793 psychiatric nurses (1.91 per 100,000), and 557 psychiatric hospitals with 129,314 psychiatric beds (9.95 per 100,000) nationwide[1]. Through strengthening the mental health service and education systems nationally, by 2015, there were 27,733 psychiatrists and psychiatric registrars (2.02 per 100,000 population), 57,591 psychiatric nurses (4.19 per 100,000) and 2,936 mental health services with approximately 433,000 psychiatric beds (31.5 per 100,000)[3]. In contrast, based on the World Health Organization (WHO)'s Mental Health Atlas[4], the proportion of psychiatrists in 2014 was 0.3 per 100,000 in India, 0.87 per 100,000 in Thailand, and 20.1 per 100,000 in Japan.

Although the number of mental health professionals has increased in China, there remains a comparative shortage in human resources. Furthermore, these resources are mostly located in urban psychiatric hospitals, making services far less accessible for at least half of China's 1.39 billion people living in rural areas. Moreover, the lack of qualified community mental health professionals, which applies to many urban areas even today, remains a major barrier.

To effectively manage millions of community-dwelling patients with severe psychiatric disorders, a national community-based model named "The management and treatment program for severe mental illness with subsidy from the central government" or the "686 Program" was initiated in 2004. We were involved in the development and training components of this program, which integrates the resources of hospital services, community case management, neighborhood committees and the police to provide comprehensive monitoring, treatment, rehabilitation and prevention services. The program prioritized patients with psychiatric disorders and relatively high risk of violent behaviours, namely those with schizophrenia, schizoaffective disorder, paranoid psychosis, bipolar disorder, and epilepsy and mental retardation associated with mental disorders.

Since 2004, the central and local governments have so far invested CNY 2.24 billion (US$ 325 million) in this program. By 2015, a total of 5.4 million patients with severe mental illness (of which around three quarters with schizophrenia) have been registered at 2,774 districts/counties in 31 provinces, municipalities and autonomous regions. Of the registered patients, 88.7% received regular services and follow-up monitoring[3]. Despite these large figures, the treatment coverage is

relatively limited, considering that there are an estimated 173 million Chinese people in the community who suffer from psychiatric disorders[5]. Much improvement in the scale of appropriate services is therefore needed in order to reduce the treatment gap.

Comprehensive epidemiological data are important in informing policy and service developments to address the treatment gap in China. Initiated by the Ministry of Health with the support of the WHO, two early large-scale psychiatric surveys had been conducted in 1982 and 1993. Between July 2013 and March 2015, the first national mental health survey, involving 28,140 respondents, was conducted in 31 provinces, municipalities and autonomous regions of China[6]. The preliminary findings were announced by the National Health and Family Planning Commission of China on April 7, 2017. These included the prevalence of mood disorders, depression and anxiety disorders, being 4.06%, 3.59% and 4.98%, respectively[3].

However, epidemiological data on special populations, such as immigrant workers, children, adolescents and older adults, are still lacking in China. Further, critical information on the health burden and impact of psychiatric disorders such as illness severity, duration and degree of disability, and associated physical comorbidities, remains largely unavailable.

China's population is rapidly aging, mostly due to the increased life expectancy as well as the one-child family policy that was instituted for 35 years. In 2000, only 7% of Chinese population was over the age of 65 years, but the figure is expected to reach 23% by 2050[7]. Due to the one-child family policy, the proportion of "empty nest family" in China had grown to 25% of all elderly households in 2003, with a projected increase to 90% by 2030[8]. The change in family structure may have significant impact on the access to social care and financial independence, as well as on the mental health of the elderly.

Currently, the availability of psychogeriatric services is deficient, and general mental health services and even treatment guidelines or intervention models for older people are poorly developed in China. The burden of care may therefore ultimately fall on family caregivers. As consequence, many family members may experience psychological problems and poor quality of life, as well as limited employment opportunities.

The protection of the rights of psychiatric patients in China remains an important concern[9]. Of note, the National Mental Health Law finally came into effect on May 1, 2013. It provides the legal framework to uphold the rights of psychiatric patients to receive dignified and appropriate treatment. According to one study, the prevalence of physical restraint in Chinese psychiatric patients decreased from 30.7% to 22.4% following the implementation of the legislation[10]. Psychiatric patients and/or their families have the right to apply for an independent medical assessment by a third party if there is a dispute about an involuntary admission[9]. However, in practice, qualified independent third parties are not easily accessible and are only available in major cities.

In summary, due to its rapid economic growth and fast-changing social structure, China still faces enormous mental health challenges. Although China's mental health legislation is a critical part of mental health reform, effective implementation of high quality services will require sustained investment in community mental health care. Decreasing the treatment gap and promoting community integration require sufficient workforce as well as innovative service models. As such, the government is investing in doubling the number of psychiatrists by 2020 and promoting digital approaches in mental health care.

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Psychotic experiences as an independent risk factor for angina pectoris in 48 low- and middle-income countries

People with schizophrenia are known to have a life expectancy reduced by 10-20 years compared to the general population[1], which is largely attributable to their increased risk for cardiovascular diseases (CVDs)[2].

There is some evidence that people with psychotic experiences (PEs) who do not reach the clinical threshold for a psychosis diagnosis are also at higher risk of premature mortality (by 5 years)[3], which likewise may be explained by a higher likelihood of CVDs[4,5]. Furthermore, similar to schizophrenia, there is increasing evidence that PEs are associated with adverse health behaviors, diabetes and mental health problems, which may all increase CVD risk[5].