

This is an Accepted Manuscript for *International Psychogeriatrics* as part of the Cambridge Coronavirus Collection.

DOI: 10.1017/S1041610223000613

## **Older people's mental health is more complex than urban-rural differences**

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### **Special issue: Health Inequities in Health and Social Care in Geriatric Psychiatry**

Commentary on 'Decomposition and Comparative Analysis of Differences in Depressive Symptoms Between Urban and Rural Older Adults: Evidence from A National Survey' by Yuan et al 2022

With the increasing interest in health equity, as highlighted by this special issue of *International Psychogeriatrics*, there is a particular need to delineate that not all health differences can be framed as health disparities alone, i.e., differences in health status between groups, such as younger and older people. Health disparities are closely linked to differences in people's economic, social, or environmental disadvantages, which then adversely affect their health outcomes and care, such as being part of a discriminated group (i.e., racial/ethnic group) or due to geographic location (Braveman, 2014). These health inequalities have many faces, exist within and across countries, and require coordinated international and national multi-level changes in policies, government programs, and systems to be reduced (WHO, 2015).

The inequalities between urban and remote/rural areas within the health and social systems are well-known (WHO, 2010). This disparity is mostly caused by the limited availability of health care workers who prefer living and working in urban areas (76% of physicians and

62% of nursing workforce), despite half of the world's population living in remote and rural areas (WHO, 2010). This discrepancy is commonly observed in most countries, including USA, Australia, and France; however, it has the biggest impact in low-income countries, such as Bangladesh, the Democratic Republic of the Congo and Mali (WHO, 2010). One of the ways to reduce these inequalities, as proposed by the WHO (2010), is by encouraging health professionals to work in more remote/rural areas.

Unfortunately, the general inequality within services across urban/rural areas mostly affects the most vulnerable groups who usually require higher levels of healthcare access due to their increased risk of diseases, such as older people. There is a relatively well explored rural-urban gap in physical health among older adults. Conversely, research investigating the rural-urban gap in cognitive functioning is scant (Glauber et al., 2022), with what is available suggesting increased risk of developing dementia or mild cognitive impairment when living in rural regions (Weden et al., 2018).

Yet, there is not much known about how populations of older people are affected by those differences in access to care and if there are other modifiable factors, outside of changes in health systems and providing more services and resources for remote and rural populations, which can play a role in reducing those differences and supporting better healthcare outcomes.

The paper by Yuan and colleagues (2023) in this *International Psychogeriatrics* special issue sheds important new light into these factors. The authors investigated factors influencing urban-rural discrepancies in depressive symptoms among older adults in China and measured their contribution as part of the 2018 Chinese Longitudinal Health Longevity Survey (CLHLS). In their paper, the authors present data of  $n = 11,245$  older adults from rural ( $n = 7,907$ ) and urban ( $n = 3,338$ ) areas of China (covering 23 provinces). They reported higher levels of depressive symptoms among those living in rural areas (12.41% vs. 10.13%). This finding adds to the research body reporting increased depressive symptoms across rural areas in older people (i.e., Wang et al., 2021), but sits in contrast to other studies that either show the opposite (i.e., Ziarko et al., 2015) or find no evidence of a rural-urban difference (i.e., Sun et al., 2022).

A novel aspect of the study by Yuan and colleagues (2023) is that they conducted Fairlie decomposition analysis to explore factors that might be influencing the difference in depressive symptoms between the urban and rural older adults in their cohort. Their analyses

showed that the difference in depressive symptoms between Chinese people living in urban and rural areas was related to a series of modifiable factors, explaining nearly three-quarters (73.96%) of the observed difference. These modifiable factors include annual income (31.51%), education level (28.05%), sleep time (-25.67%), self-reported health status (24.18%), dysfunction in instrumental activities of daily living (20.73%), exercise (17.72%), living status (-8.31%), dysfunction in daily living activities (-3.29%) and social activity (2.44%). The other 26.04% of the difference in depressive symptoms were related to urban/remote and unobserved factors. The authors also calculated protective and risk factors for developing depressive symptoms and these differed for rural and urban older adults in their study. For example, both higher annual income and exercising were specific protective factors to urban areas, whereas one of the non-modifiable risk factors associated with higher depressive symptoms was being 80 years or older (Yuan et al., 2023).

Other research confirms that these modifiable factors, such as coping strategies, lifestyle, and environmental changes might support better well-being of people living in rural areas (Ziarko et al., 2015). Additionally, Cosco and colleagues (2018) associate adult socioeconomic advantage (i.e., social support and leisure time physical activity) with greater resilience (understood as higher well-being despite declines in physical capabilities). Hopper and colleagues' (2023) large cross-sectional study from Canada ( $n = 30,097$  aged between 45 – 85 years old) adds to the understanding of associations between socioeconomic position and mental health resilience (defined as '*the discrepancy between one's reported current mental health and one's predicted mental health based on their physical performance*'). Their results suggest that these links are stronger for people declaring low and middle values of household incomes than those with high values. However, financial status can be mediated by individual resources such as social networks (accounted for 16% of the association) and physical activity (accounted for 6%) (Hopper et al., 2023).

This suggest that recommendations to reduce the inequalities between urban and non-urban areas should extend to providing more support and services than purely increasing the ratio of healthcare workers. This could start with increasing services providing psychoeducation about lifestyle, including exercise and sleep, as well as general access to education. Similar conclusions are drawn by a study investigating the differences in white matter hyperintensities in socioeconomically deprived groups, suggesting that they are associated with health-related risk factors and should be targeted by prevention programs (Rodriguez et al., 2023;  $n = 1,185$ ).

Therefore, there are limits to addressing the health rural-urban gap by simply increasing the number of healthcare workforce in more remote areas. Rather, what is needed is for more interventions that address lifestyle-factors, like facilitating more social activities and psychoeducation about the role of sleep and exercise. Governments and policymakers should also continue to implement long-term plans to reduce the inequalities in education and income levels, which should target the younger generations to reduce health inequalities while they age.

There are also some limitations to Yuan and colleagues (2023) study. First, the sample size of people living in the rural areas was much greater than those from urban areas ( $n = 7,907$  vs.  $n = 3,338$ ). Second, the authors focused on depressive symptoms measured by the Center for Epidemiological Studies Depression Scale (CES-D 10). These questions focus on depressive symptoms, loneliness, hopefulness, and sleep, with responses ranging from “0: all of the time” to “3: rarely or never” and a total score between 0 and 30. Despite its well-known high psychometric properties, the cut-off point of 10 does not indicate the clinical diagnosis of depression and does not consider how long the depressive symptoms last. In the future, it would be beneficial to conduct similar studies using more objective measures including a clinical diagnosis of depression. Third, the study was limited in that it focused on a specific set of modifiable factors and did not explore the contribution of other known, influential lifestyle factors, such as diet (Wu et al., 2021).

In conclusion, Yuan and colleagues’ (2023) article provides an important insight into the potential modifiable risk factors for depression, which can help address inequalities in care among older people living in rural/urban areas. Factors like education, better sleep, and exercise can be relatively easily modified and could potentially reduce the levels of depressive symptoms among older people in rural/remote areas. Although other factors like income or living status could be more challenging to address in the short-term, they still could be included in longer-term strategies reducing the disparities across different areas of the same country. This study presents a great opportunity for further research exploring factors influencing other mental health symptoms (i.e., anxiety, cognitive problems) as they often co-exist with depressive symptoms. Future work should pilot and evaluate the efficacy of some community-based interventions to reduce the differences and therefore decrease the risk of depressive symptoms in remote/rural populations.

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