

Complexity in primary care: Beyond multimorbidity in Healthier SG

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The global ageing population, particularly older adults with complex biopsychosocial needs, drives increased healthcare utilisation, burdening both the health system and wider society.^{1,2} Primary care physicians (PCPs) may be uniquely positioned to manage patients with complex health needs, given their role in providing continuous, comprehensive, and coordinated care as a first point-of-contact.³ Effectively managing complex patient needs poses a critical challenge for the primary care system, extending beyond financing to encompass the targeted allocation of resources, including time, human resources and ancillary services.

In this issue of the *Annals*, Quek et al. present a cross-sectional study assessing the prevalence of complex care needs in Singapore primary care and identify associated factors of care complexity across 6 polyclinics within 1 of the 3 healthcare clusters.⁴ The study found that 33.5% of 4327 unique patient encounters involved complex care needs, with common medical needs, including polypharmacy and poor control of chronic conditions, and non-medical needs including poor health literacy. The authors divided those with complex care needs into 2 groups: medically challenging and complex care. Factors independently associated with complexity included low socioeconomic status, mobility issues and higher healthcare utilisation, highlighting the need for effective methods to identify and manage complex care needs. The study also revealed that complex care encounters required significantly more resources. For example, physician consultation times increased from 12.7 minutes (routine care) to 17.8 minutes (complex care), while overall costs of care increased from SGD 705 to SGD 1254, highlighting the need for adequate resource allocation for managing complex care patients.

This study leveraged a robust methodology, utilising routinely collected, real-world medical records data from patients treated by a randomly selected and diverse group of experienced primary care physicians in active practice. The dataset was complete, with no missing data, thereby ensuring

the results are relevant and directly applicable to real-world primary care. Its exploratory nature and use of mixed-effects regression to account for potential clustering between individual physicians are commendable. However, the study falls short in addressing potential clustering effects at the clinic level and inter-rater reliability. In essence, determining complexity is a classification task, where patients are categorised into different levels according to predefined criteria. To improve robustness, future studies could employ strategies such as random audit, benchmarking or standardisation, using a small group of expert raters and removing assessor bias. AI-driven models, such as simple Large Language Models (LLMs), may also be useful in determining complexity, offering a potential solution to reduce respondent burden.⁵

This study adds to the increasing body of knowledge on patient complexity, which has been skewed towards the characterisation of multimorbidity using a range of approaches.⁶ A significant merit of this study is the shift from complexity as a characteristic of an individual to the consideration of complexity as a property of a particular interaction between a patient and a healthcare professional. Although not a new idea, it is a path that has been less explored in recent years. Future studies would benefit from considering multiple visits for the same patients, thereby providing stronger evidence both for the differentiation of this construct from patient complexity and for its validity. Additionally, stronger evidence may come from studies in which the different categories are operationalised explicitly and unambiguously.

The study's approach to identifying classification factors through a questionnaire and reporting significant differences across groups may raise concerns about independence, rather than circular reasoning, for factors not extracted from the survey. Specifically, some factors were obtained from medical records, which may not be directly influenced by the classification criteria. While the current model has limitations—including the close relationship between independent variables (e.g.

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number of issues managed, ambulation status, housing type, number of chronic conditions, resource utilisation) and measures (e.g. medical, functional, social, resource utilisation)—the complex interrelationships and overlapping influences between predictors and outcomes are not fully accounted for. Future studies should aim to explore more nuanced relationships between variables and incorporate additional data sources for triangulation; and by doing so, researchers can refine the classification criteria and develop more robust models to adequately capture complexities of patient needs.

As Singapore embarks on the nationwide Healthier Singapore (Healthier SG) initiative, a significant health reform launched in July 2023 that aims to provide integrated and longitudinal care via enrolment with PCPs, numerous concerns have arisen. First is the adequacy of compensation for PCPs both in the private as well as public sectors.⁷ While the Ministry of Health will provide reimbursement through per capita payments (based on numbers enrolled) and key performance indicators, there are concerns that this compensation may not accurately reflect the additional time and effort required to manage complex care for patients, particularly given Singapore's rapidly ageing population.⁸ The second is whether there is an adequate number of physicians to provide the envisioned primary care services. This study highlights the imperative for innovative care systems that redistribute responsibilities beyond physicians, leveraging more cost-effective and sustainable workforce models to meet the needs of an ageing population, thereby reducing reliance on expensive physician manpower. Without such transformative changes, the ambitious goals of Healthier SG will remain elusive.

The study's findings make a significant contribution to the existing literature on measuring complexity in primary care, highlighting the need for a more comprehensive and coordinated approach to managing complex patient needs. In the context of Healthier SG, which prioritises effective primary care, this study's emphasis on care complexity beyond multimorbidity is particularly pertinent. To develop targeted and sustainable solutions, re-examining funding and care coordination models is crucial. Consideration should be given to allocating a protected amount of capitation funding for primary care, similar to National Health Service England's dedicated allocation of 9.5%.⁹ Moreover, new care models must be developed to address the complex

interplay of social determinants of health, such as social isolation, education, employment and mental health, which influences health outcomes and worsen care complexity.^{10,11} By embracing a nuanced understanding of care complexity beyond a sole focus on multimorbidity, we can develop appropriate solutions to improve outcomes and yet reduce costs, and ultimately transforming our primary care into a more sustainable, equitable and patient-centred system.

Declaration

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