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Supplementary method S1: Sampling and data collection

As a surrogate for socioeconomic status,¹ Housing & Development Board (HDB) apartment size has been found to be positively associated with health-related quality of life (HRQOL).² Sampling quotas were imposed to obtain a study sample representative of the Singapore general population, i.e. reflecting the proportions in the 2010 Singapore census, which was the most recent national data at the time we planned the study.³ A local commercial survey company designed and implemented the sampling, recruitment and the household survey. In the first sampling stage, 10 out of 31 constituencies were randomly selected. As the vast majority of Singaporeans (77.9%) live in Housing & Development Board (HDB) apartments⁴, HDB blocks were used as the sampling frame in the second sampling stage. Two HDB apartment blocks were randomly selected from each constituency. In the third stage, which involved quota sampling, 35 residents were selected from each HDB block or its neighbouring blocks if the quotas for age, sex, ethnicity or apartment size could not be fulfilled within an HDB block.

All households in the selected HDB blocks were invited to the study, initially by mail and subsequently by home visits. Trained interviewers explained the study face-to-face to each consenting household and recruited 1 eligible resident per household. After informed consent was obtained, an electronic survey form was administered using a tablet in the manner of supervised computer-assisted self-interviewing (CASI) in the participant's home or a quiet public place nearby. The survey form included the European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire-Core Questionnaire 30 (QLQ-C30), 16 pairs of EORTC Quality of Life Utility-Core 10 Dimensions health states for stating preferences (not used in this study), the EuroQol 5-dimension 5-level questionnaire (EQ-5D-5L) and questions assessing sociodemographic and health characteristics.

Supplementary method S2: EQ-5D-5L

The EQ-5D-5L describes respondents' health on the day of survey in 5 dimensions (mobility, selfcare, usual activities, pain/discomfort and anxiety/depression) as 1 of 5 levels including "no problems", "some problems", "moderate problems", "severe problems" and "extreme problems" or "unable". The hash-marked EuroQol visual analogue scale (EQ VAS) is a rating of respondents' overall health on the day of survey using a score ranging from 0 (the worst imaginable health) to 100 (the best imaginable health).

A respondent's responses to this multi-attribute descriptive system form a health state, and a predefined index score can be assigned to it to indicate its utility value from the perspective of the general public. The utility values of all the 3125 (i.e. 5⁵) health states, defined by EQ-5D-5L or a value set, have been established for many countries to reflect local health preferences.⁵ Values from all value sets are anchored by 0 (dead) and 1 (full health), with negative values indicating the corresponding health states worse than dead. The EQ-5D-5L index scores were calculated using a value set, which was estimated using the health preferences of a representative general Singaporean population sample (n=500) elicited using an EuroQol valuation protocol (manuscript in preparation). This preference-based EQ-5D-5L index score ranges from -0.817 to 1. The scoring algorithm is available upon request to Dr Luo Nan (ephln@nus.edu.sg).

Supplementary method S3: EORTC QLQ-C30

The 30 questions on the QLQ-C30 summarise as: 1 summary QOL scale (27 items);⁶ 5 functional scales measuring physical, role, emotional, cognitive and social functioning (15 items in total); 9 symptom scales/items measuring fatigue, nausea and vomiting, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea and financial difficulties (13 items in total); and a global health status/quality of life (QoL) scale (2 items). The QLQ-C30 summary score can be calculated by reverse-scoring the symptom scales and then calculating the mean of all the scales (except for the global health status/QoL scale and the financial difficulties scale).⁷ All scale and item scores range from 0 to 100.⁸ A higher score on the functional scales and the global and summary QoL scales

represents a higher level of functioning/HRQOL, while a higher score on the symptom scales/items represent a higher level of symptoms.⁸ A higher QLQ-C30 summary score represents a higher level of HRQOL.

Supplementary method S4: Regression-based method for computing population norms

Estimated marginal means for the EQ-5D-5L index score, VAS and each QLQ-C30 subscale were calculated for the different age, sex, ethnicity and language version groups. As multiple regression analyses revealed that housing type and marital status were not statistically significant predictors for any of the EQ-5D-5L or QLQ-C30 scores, we included only age, sex, ethnicity and education level in the linear regression models for generating the estimated marginal means.

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	Male			Female		
	21-44	45-64	65+	21-44 years	45-64 years	65+ years
	years	years	years			
Chinese	96	70	46	107	96	36
Non-Chinese	42	29	9	44	20	5

Table S1. No. of participants by sex, age and ethnicity (n=600).

Table S2. Model-predicted mean (SE) QLQ-C30 symptom and financial difficulties subscale
scores by sex, age and ethnicity.

		Male		Female				
	21-44	45-64	65+ years	21-44	45-64	65+ years		
	years	years		years	years			
Fatigue, no. (%)								
Chinese	22.1 (3.1)	16.3 (2.4)	23.4 (4.1)	22.8 (2.5)	17.1 (2.5)	24.2 (3.7)		
Non-	23.7 (2.4)	18.0 (3.8)	25.1 (4.8)	24.4 (3.2)	18.7 (4.8)	25.8 (5.3)		
Chinese								
Nausea/vomiting, no. (%)								
Chinese	3.77 (2.5)	1.88 (1.0)	0.12 (0.6)	3.30 (1.6)	1.41 (1.0)	-0.35 (1.0)		
Non-	4.91 (1.8)	3.03 (1.6)	1.26 (1.6)	4.44 (1.6)	2.56 (2.4)	0.79 (2.5)		
Chinese								
Pain, no. (%	6)							
Chinese	6.88 (3.0)	8.64 (2.2)	10.1 (3.1)	10.7 (2.5)	12.5 (2.7)	14.0 (3.2)		
Non-	9.97 (2.4)	11.7 (3.6)	13.2 (4.3)	13.8 (3.0)	15.6 (4.6)	17.1 (5.1)		
Chinese								
Dyspnoea, no. (%)								

Chinese	7.59 (3.2)	3.74 (1.7)	5.60 (2.0)	6.40 (2.1)	2.55 (1.8)	4.41 (2.4)
Non-	11.2 (3.0)	7.37 (3.2)	9.23 (3.6)	10.0 (3.3)	6.18 (4.3)	8.04 (4.8)
Chinese						
Insomnia, r	10. (%)					
Chinese	20.7 (4.9)	11.0 (2.9)	17.2 (4.8)	16.7 (3.5)	7.04 (3.1)	13.2 (4.9)
Non-	22.2 (8.1)	12.5 (4.7)	18.7 (6.1)	18.2 (6.5)	8.54 (3.5)	14.7 (5.3)
Chinese						
Appetite lo	oss, no. (%)					
Chinese	8.40 (3.8)	4.75 (1.7)	3.03 (1.4)	6.86 (2.6)	3.20 (2.1)	1.48 (2.2)
Non-	10.1 (5.6)	6.47 (3.1)	4.75 (3.6)	8.58 (4.4)	4.93 (2.5)	3.20 (3.3)
Chinese						
Constipatio	on, no. (%)					
Chinese	2.70 (3.0)	4.10 (1.7)	3.63 (1.8)	5.41 (1.9)	6.81 (2.4)	6.34 (2.3)
Non-	4.37 (1.8)	5.77 (3.9)	5.30 (3.9)	7.08 (3.3)	8.48 (5.6)	8.01 (5.5)
Chinese						
Diarrhoea,	no. (%)					
Chinese	2.41 (1.4)	3.28 (2.0)	1.50 (1.1)	2.81 (2.3)	3.67 (1.3)	1.90 (1.4)
Non-	4.63 (2.1)	5.49 (4.4)	3.72 (3.4)	5.02 (1.8)	5.89 (3.5)	4.11 (2.8)
Chinese						
Financial d	ifficulties, no	. (%)				
Chinese	2.88 (3.4)	5.05 (1.9)	5.80 (3.1)	2.10 (1.5)	4.27 (2.3)	5.03 (2.9)
Non-	5.69 (1.9)	7.86 (4.1)	8.61 (4.3)	4.91 (3.2)	7.08 (5.8)	7.83 (5.8)
Chinese	. ,					. ,

QLQ-C30: Quality of Life Questionnaire-Core Questionnaire 30