

# Development of a Patient-Preference-Weighted Scoring Algorithm for the Quality of Care for Patients with Advanced Illness (QCPAI) in a Multi-Ethnic Asian Setting

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## Objectives

- The Quality of Care for Patients with Advanced Illness (QCPAI) is a patient-reported experience measure to assess the quality of care for those with advanced illnesses.
- This study aimed to develop a preference-weighted scoring algorithm for the QCPAI based on values from patients with advanced illness in multi-ethnic Singapore.

## Methods

- We recruited patients with advanced illnesses across four hospitals and two hospices in Singapore.
- Patients completed the QCPAI and a discrete choice experiment (DCE) to elicit their relative preferences across care domain levels. Preference weights were estimated using a latent-class logit model and rescaled to compute summary scores ranging from 0 (worst) to 100 (best).

## Results

### Patients

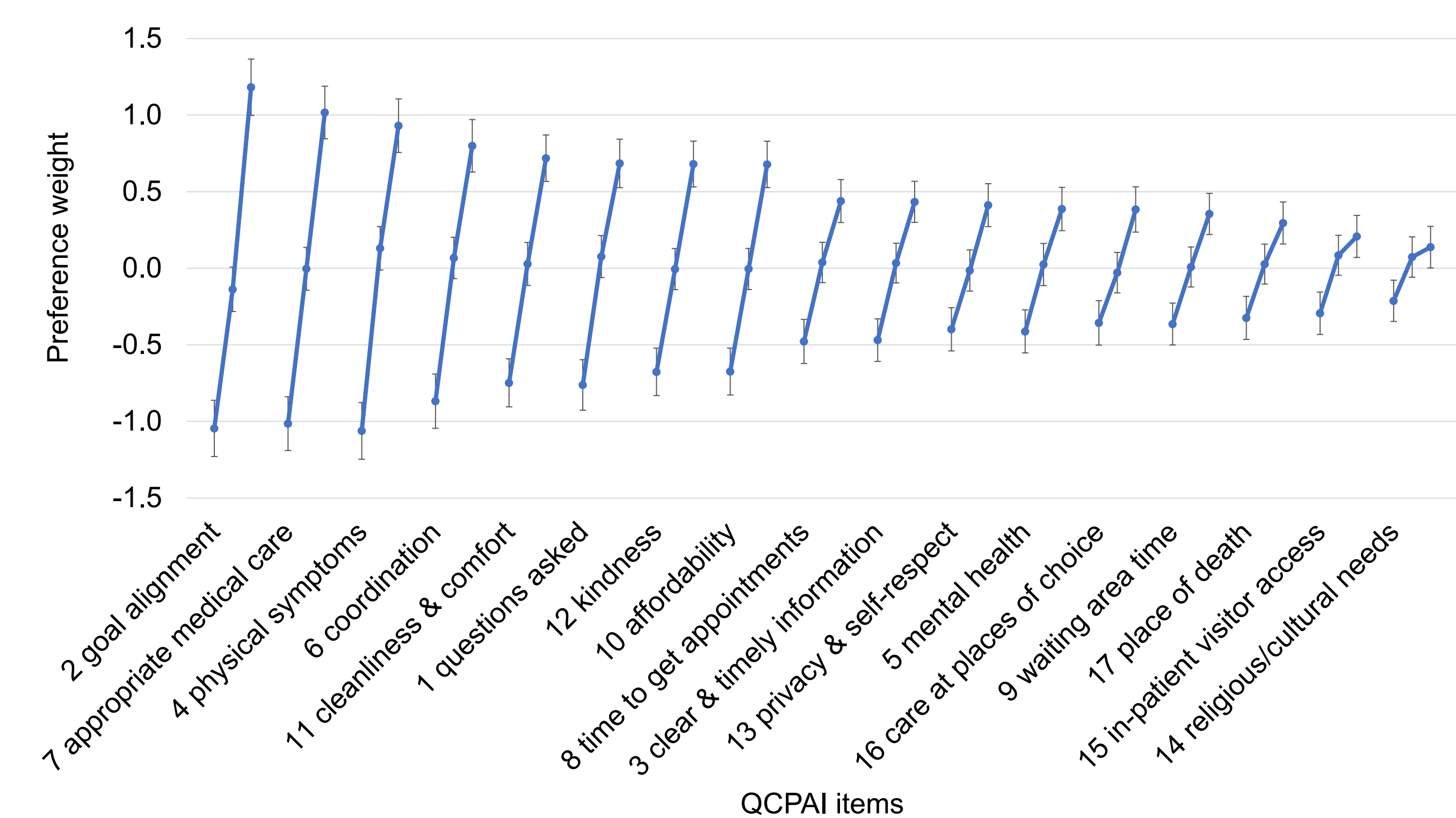
Table 1: Patient characteristics (N = 451)

Characteristic	Mean (SD) / n (%)	Characteristic	Mean (SD) / n (%)
Age	65.0 (12.4)	Household earning per month	
Female	158 (35.0%)	No income	141 (31.3%)
Ethnicity		< \$4,000	111 (24.6%)
Chinese	296 (65.6%)	\$4,000 - \$9,999	58 (12.9%)
Indian	53 (11.8%)	≥ \$10,000	27 (6.0%)
Malay	87 (19.3%)	Don't know / Prefer not to answer	114 (25.3%)
Others	15 (3.3%)	Primary diagnosis	
Education		Cancer	151 (33.5%)
Primary (≤6 years)	80 (17.7%)	Heart disease	148 (32.8%)
Secondary (<12 years)	210 (46.6%)	Lung disease	73 (16.2%)
Tertiary	161 (35.7%)	Renal disease	72 (16.0%)
		Others	7 (1.6%)
		Outpatient	200 (44.3%)
		Hospice	121 (26.8%)

- The cohort is 65% male and 34% non-Chinese, with an average age of 65.
- Cancer is the most common illness, with heart disease following closely.
- More than half the patients are from inpatient settings.
- Over a quarter of patients are in hospices.

### Preferences

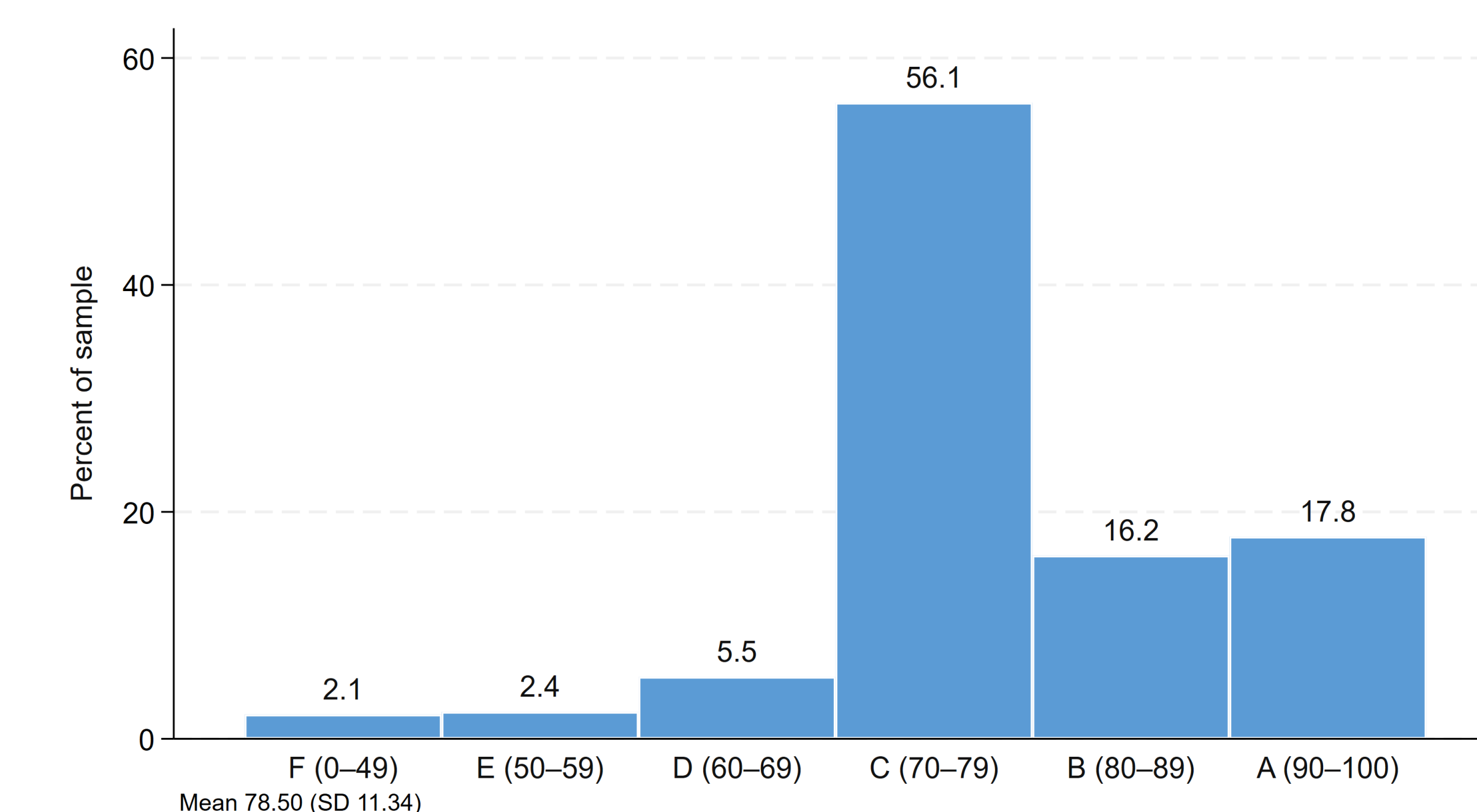
Figure 1: Preference curves ordered by QCPAI item importance



- Most important domains were alignment with treatment goals (11.2% relative importance), appropriate medical care (10.2%), and physical symptom management (10.0%).
- Religious needs (1.8% importance) and in-patient visitor access (2.5%) were ranked lowest.
- Patients value improvements from poor to moderate quality similarly to improvements from moderate to high quality (preference curves are mostly linear).

### Preference-weighted scores

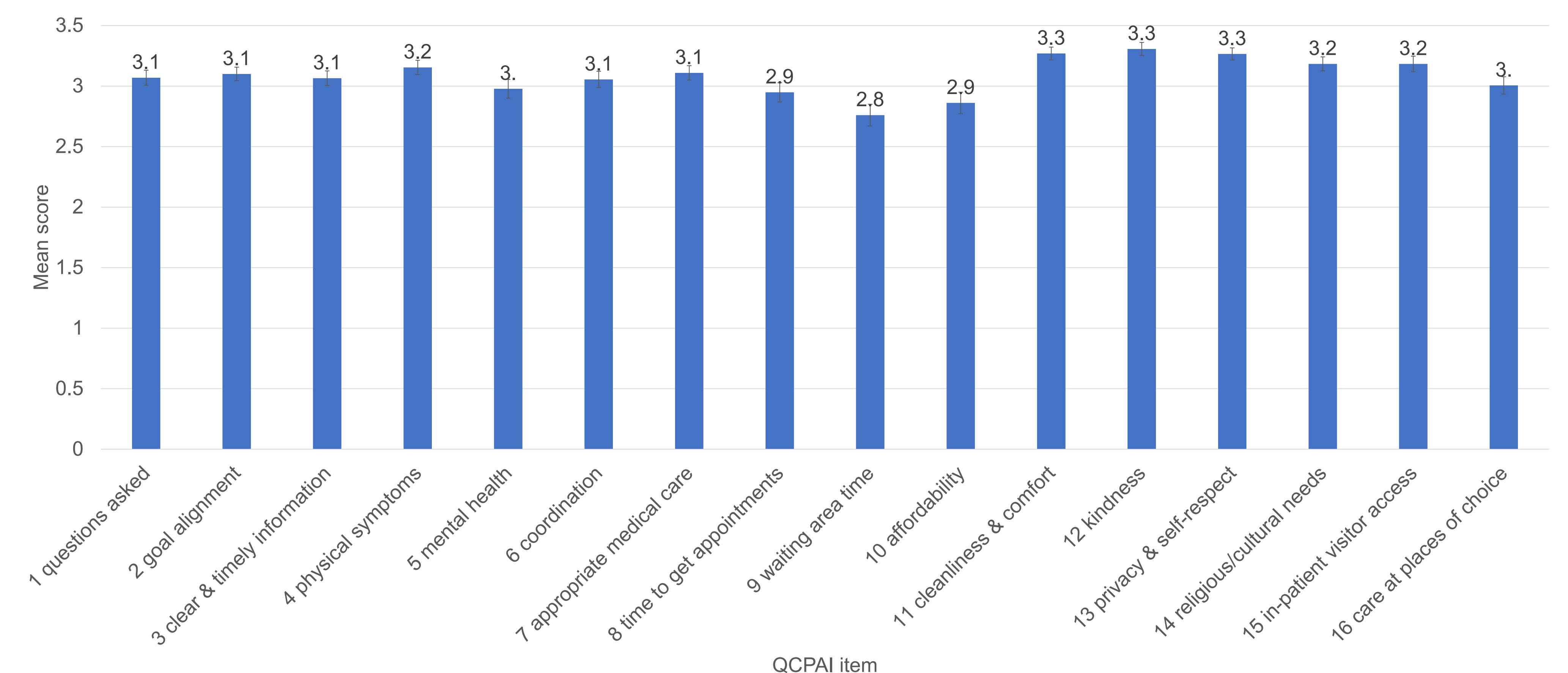
Figure 2: Distribution of QCPAI preference-weighted scores



- Mean QCPAI score is 78.5 (SD 11.3).
- 34% patients score ≥80.
- 10% patients score <70.

### Item scores

Figure 3: Means of QCPAI item ratings



- Most item-level scores indicate a positive experience (≥3 on a scale of 0-4)
- But affordability (mean score 2.9), time to get appointments (2.9), and waiting area times (2.8) were rated as suboptimal.

### Factors associated with item scores

Table 2: Associations between QCPAI preference-weighted score and patient characteristics

Covariate	QCPAI Score
Age (years)	-0.088*
Female	-2.270**
Non-Chinese ethnicity	1.605
Reference: No income	
< \$4000	0.609
\$4,000 - \$9,999	1.235
≥ \$10,000	10.22***
Don't know / Prefer no answer	-0.423
Reference illness: cancer	
Heart disease	-4.468***
Lung disease	-3.132**
Renal disease	-6.471***
Others	-1.264
Outpatient	2.671**
Hospice	1.265

Estimates are from linear regression. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

- Females experience worse care.
- Household earnings of over \$10,000/month raise average quality by 0.9 SD.
- Heart, lung, and renal disease patients experience worse care than cancer patients.
- Outpatient participants experience better care.
- Evidence for better care experiences at hospices is not identified.

## Conclusions

- The QCPAI provides a preference-weighted metric for benchmarking care for patients with advanced illnesses.
- It can be used to evaluate care quality over time within and across institutions and to quantify the effectiveness of interventions aimed at improving care quality for this vulnerable population.
- We are scaling QCPAI to 16 countries in the Asia-Pacific region and four countries in Africa.