



Michael Pham¹, A. Simon Pickard¹, Tessa Peasgood², Ole Marten³, Zhihao Yang⁴, Maja Kuharic⁵

¹ Department of Pharmacy Systems, Outcomes, and Policy, University of Illinois Chicago College of Pharmacy, Chicago, IL, USA

² School of Medicine and Population Health, University of Sheffield, Sheffield, United Kingdom

³ Department of Health Economics and Health Care Management, School of Public Health, Bielefeld University, Bielefeld, Germany

⁴ Health Services Management Department, Guizhou Medical University, Guiyang, China

⁵ Department of Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

INTRODUCTION

Symptoms such as pain, fatigue, and anxiety are best captured through patient-reported outcome measures (PROMs), which rely on patients' subjective self-report^{1,2}

For multinational PROMs, measurement validity depends not only on accurate translation, but also on whether respondents across cultures interpret response options consistently^{3,4}

People may differ in how they frame symptom experiences, in terms of frequency, duration, or functional impact, which may compromise cross-national score comparability^{4,5}

Empirical evidence is limited on how individuals from different countries conceptualize symptom burden and which response frames are most consistent across cultural contexts^{5,6}

OBJECTIVE

To examine whether adults in the United States, United Kingdom, Germany, and China differ in how they conceptualize symptom burden when presented with five alternative response-option frames

METHODS

Cross-sectional, web-based survey conducted via Prolific using age- and gender-based quota sampling among adults in the United States, United Kingdom, Germany, and China

Participants were presented with a symptom-burden framing question using a one-week recall period:

“When thinking about how often you experience something over the past week (like feeling exhausted or anxious), which way do you naturally think about it?”

Respondents selected one of five response options reflecting how they conceptualized symptom burden over the past week: (1) Number of days, (2) Percentage of waking hours, (3) Impact on daily life, (4) Number of episodes, and (5) It depends

An omnibus chi-square test of independence assessed whether the overall distribution of response-option selection differed by country

Response-option-specific chi-square tests identified which response options drove the association, with Holm adjustment for multiple comparisons.

RESULTS

The analytic sample included 1,265 adults from the United States, the United Kingdom, Germany, and China.

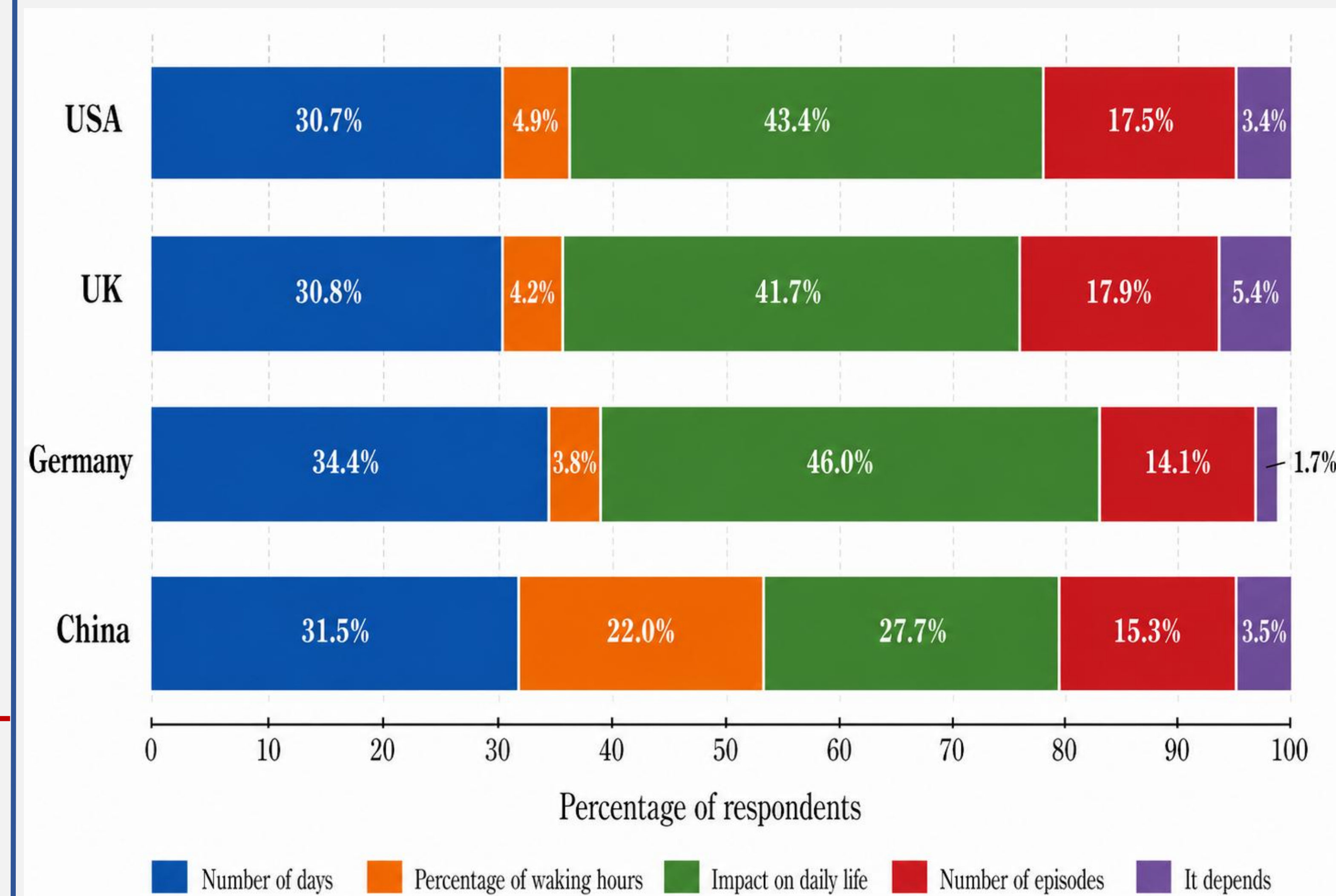
Sample sizes were generally balanced across countries, ranging from 291 respondents in Germany to 348 respondents in the United States

- Respondent characteristics differed across countries, particularly by age, sex, education, employment status, financial difficulty, and comorbidity burden.
- The UK had the highest mean age and the largest proportion of adults aged ≥65 years, whereas China had the highest proportion of female respondents, the lowest proportion with education above high school, and the highest proportion reporting no difficulty meeting monthly expenses

TABLE 1: Selected Characteristics of Survey Respondents by Country

Characteristic	USA	UK	Germany	China	p-value
SAMPLE					
N	348	312	291	314	—
DEMOGRAPHICS					
Mean age, years	46.1	48.9	41.4	42.3	<0.001
Age ≥65, %	19.0	34.6	6.5	6.4	<0.001
Female, %	52.6	48.4	50.2	60.2	0.018
SOCIOECONOMIC					
Higher than high school education, %	87.6	85.3	82.8	65.9	<0.001
Employed, %	76.4	61.2	73.5	78.3	<0.001
Not difficult meeting monthly expenses, %	42.8	46.2	40.2	66.6	<0.001
HEALTH					
Good/very good/excellent health, %	79.0	74.9	71.4	79.9	0.051
≥3 physical comorbidities, %	19.0	17.9	16.5	9.2	0.003
Any mental comorbidity, %	38.8	24.7	1.7	9.9	<0.001

FIGURE 1: Distribution of Symptom Burden Conceptualization Preferences Across Countries



- Overall response-option selection differed significantly by country, $\chi^2(12)=109.43$, $p<0.001$

- After Holm adjustment, only “Percentage of waking hours” and “Impact on daily life” differed significantly across countries, both adj. $p<0.001$.

Chinese respondents more often selected “Percentage of waking hours,” whereas Western respondents more often selected “Impact on daily life”

- “Number of days,” “Number of episodes,” and “It depends” were selected at similar levels across countries

DISCUSSION

Count-based frames, including “Number of days” and “Number of episodes,” appeared to be selected more similarly across countries, suggesting they may be easier to interpret consistently in multinational PROMs

Time-proportion and functional-impact frames showed greater cross-country variation, indicating that these response options may require closer evaluation before pooling multinational PROM data

These findings suggest that response-option design should not be treated as culturally neutral. Translation alone may not ensure conceptual equivalence across countries

PROM developers should consider cross-cultural cognitive interviewing and content validity testing early in instrument development to assess whether response options are interpreted consistently

Mixed-methods research may help clarify why response-frame preferences differ across countries, particularly between Chinese and Western respondents

Future research should evaluate whether these patterns persist across different symptoms, recall periods, and disease areas, using adjusted models to assess whether cross-country differences remain after accounting for respondent characteristics

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Disclosures: The authors declare no conflicts of interest related to this work. This work was supported in part by the University of Illinois Chicago/Pfizer HEOR Fellowship Program

Acknowledgments: The authors thank the study participants for their time and contributions and acknowledge the support of colleagues in the UIC College of Pharmacy, Department of Pharmacy Systems, Outcomes, and Policy.

Presented at ISPOR 2026, Philadelphia, May 17-20th 2026

