

Health-Related Quality of Life (HRQoL) measured by PROMIS Preference Score (PROPr) in the general population of the United Kingdom, France, and Germany

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Background

The PROMIS Preference Score (PROPr) is a new generic, societal, and preference-based health-related quality of life (HRQoL) score for Quality-adjusted life years (QALY) in cost-effectiveness analyses, promising to overcome limitations of existing legacy measures such as ceiling effects. It is the first HRQoL score using modern instruments based on Item Response Theory (IRT). The PROPr contains seven PROMIS domains: cognition, depression, fatigue, pain, physical function, sleep disturbance, and ability to participate in social roles and activities. It was valued in US preferences using standard gamble (SG) online interviews.

Methods

We collected PROMIS-29 Profile and EQ-5D-5L in three large representative samples of the general population in the United Kingdom (n=1,509), France (n=1,501), and Germany (n=1,502). For the missing cognition domain in the PROMIS-29 Profile we assumed population average, i.e. Theta T-Score of 50 (or Z-Score of 0) on the PROMIS Scale. Descriptive statistical analyses compared both scores across age and gender, their correlation, and distribution over the full range of health.

Objectives

1. Measuring HRQoL by PROPr in the general population of the United Kingdom, France and Germany
2. Comparing HRQoL measured by PROPr to HRQoL measured by EQ-5D-5L index value
3. Investigating behavior of both scores across age and gender

Results

Table 1: Mean results of all three samples (p<0.01 for all values)

Country	United Kingdom	France	Germany
EQ-5D-5L Index Value	0.79	0.82	0.88
PROPr	0.48	0.54	0.48
Difference (EQ-5D – PROPr)	0.31	0.29	0.39
Pearson Correlation Coefficient	0.76	0.72	0.66

Figure 2: Histograms of PROPr and EQ-5D-5L index value in all three samples

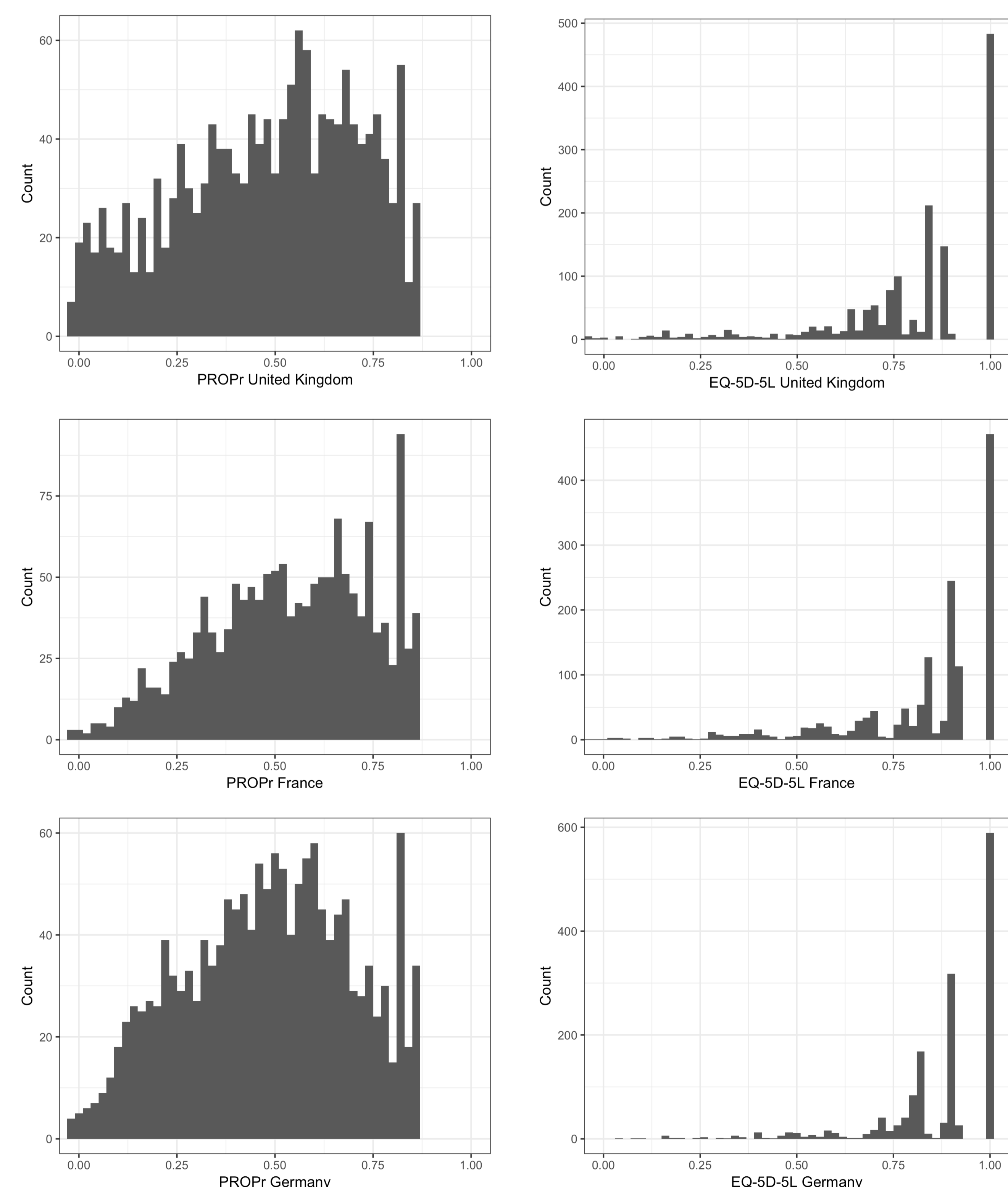
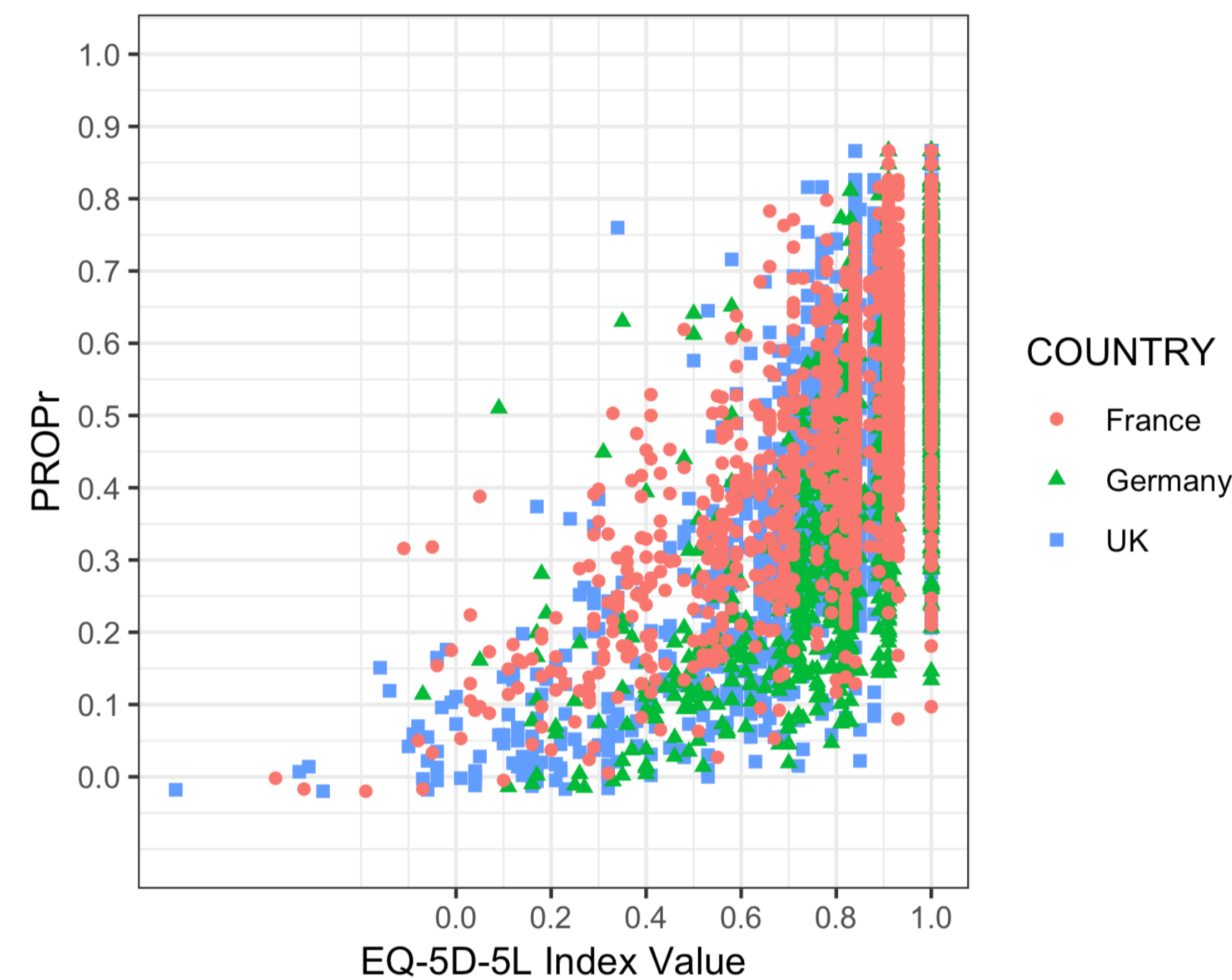
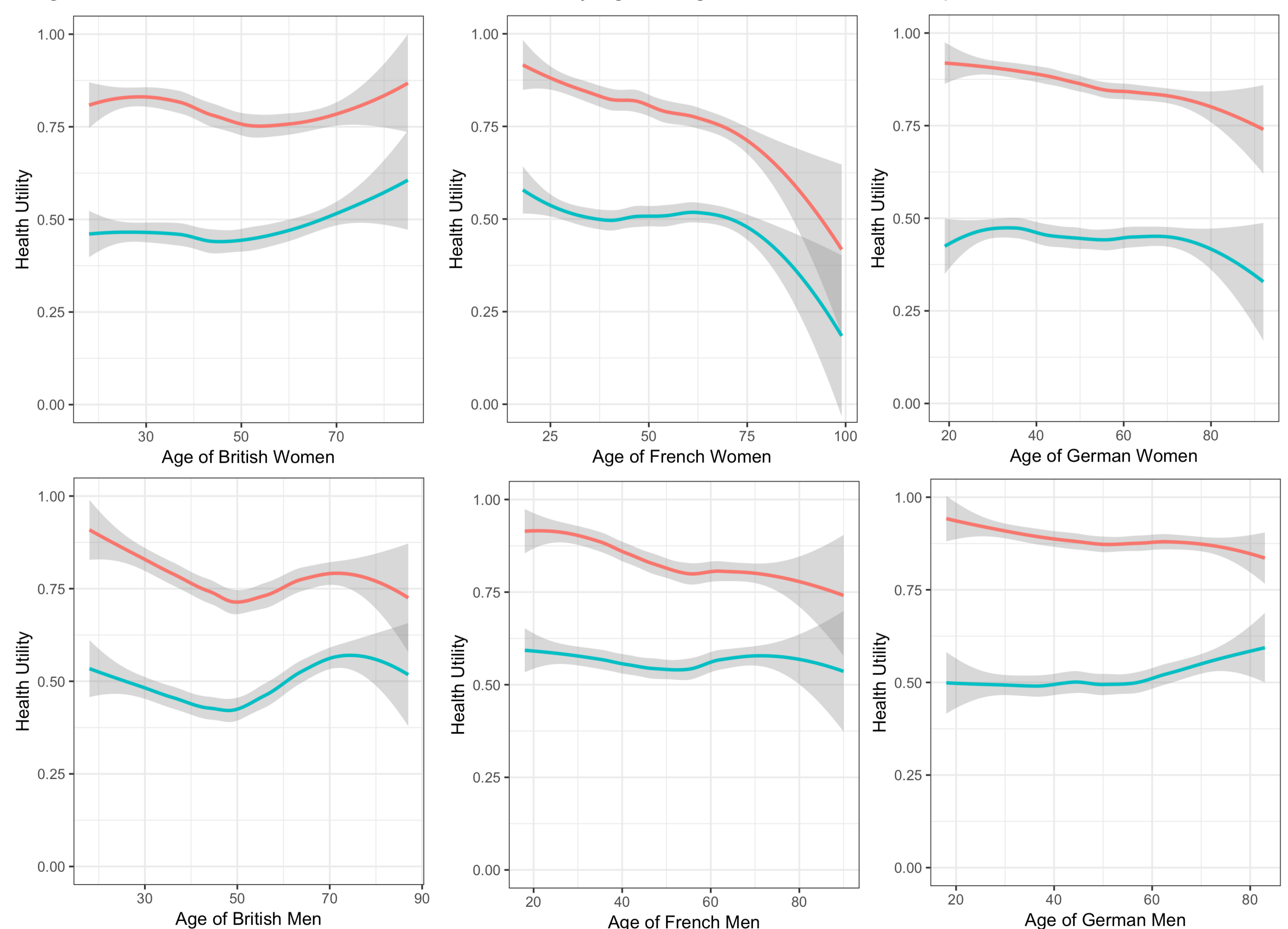


Figure 1: Scatterplot of EQ-5D-5L against PROPr by country



Our analyses show a significant but consistent difference in HRQoL measured by PROPr and EQ-5D-5L index value, respectively, in all three samples. The PROPr is roughly normally distributed while the EQ-5D-5L index value shows ceiling effects. Both scores show similar discrimination across gender and age. These results confirm earlier findings in the PROPr US valuation sample and in a sample of German rheumatological patients.

Figure 3: Discrimination of EQ-5D-5L and PROPr by age and gender in all three samples



Conclusion

1. HRQoL defined by PROPr is much lower than defined by EQ-5D-5L index value
2. Correlation, distribution and discrimination of both scores are similar across all three samples
3. For fairer comparison, valuation of PROPr in European preferences using Time-Trade-Off (TTO) is needed