Feasibility, comparability, and reliability of the standard gamble compared with the rating scale and time trade-off techniques in the EQ-5D-5L valuation study

Kim SJ, Lee SJ, Jo MW

University of Ulsan, Seoul, Seoul, South Korea

OBJECTIVES: This study was conducted in order to compare the SG with the rating scale (RS) and time trade-off (TTO) techniques in terms of their feasibility, comparability, and reliability in the EQ-5D-5L valuation survey of the general Korean population. METHODS: Five-hundred members of the general Korean population were recruited using a multi-stage quota sampling method in Seoul and its surrounding areas, Korea. Respondents evaluated the 9 EQ-5D-5L health states using a visual analogue scale (VAS), SG and TTO during a personal interview. Feasibility was assessed in terms of the level of difficulty, administration time, and inconsistent terminology. Comparability was evaluated using correlation and the Bland-Altman approach. Test-retest reliability was analyzed using the intraclass correlation coefficient (ICC). RESULTS: Of the three methods, VAS was the easiest and quickest method to respond. The SG method did not differ significantly compared to the TTO method in administration time as well as the level of difficulty. The SG and TTO values were highly correlated (r = 0.992), and the average mean difference between the SG and the TTO values was 0.034. The ICCs of the VAS, SG, and TTO scores were 0.960, 0.841, and 0.827, respectively. CONCLUSIONS: This study suggests that the SG method compared with the VAS and TTO method was feasible and offered a reliable tool for population-based, health state valuation studies in Korea.

A Refined Comorbidity Index for the Studies of Health Related Quality of Life

De Vries M1, Kessler H2, Shin JH3, Liu W1, Duan L2, Gao C1, Lu N3, Liu M4, Xu F1

1Reilly Associates, New York, NY, USA, 2University of Calgary, Calgary, AB, Canada, 3Abbott Laboratories, Abbott Park, IL, USA, 4Abbott Laboratories, Singapore, Singapore, 5Lorimer Enterprises Inc., AB, Canada, 6Klinikum Oldenburg GmbH, Oldenburg, Oldenburg, Germany, 7Vottomach, Inc., Calgary, AB, Canada

OBJECTIVES: To refine Health-related Quality of Life (HRQOL) physical and Mental Comorbidity Indices into one single composite index, which can be feasible for risk adjustment in the studies of HRQOL. METHODS: The 2007 Medical Expenditure Panel Survey (MEPS), a nationally representative database in the United States, was used for refining the comorbidity index. The SF-12 in the MEPS was the measure of HRQOL and Clinical Classification Codes in the MEPS indicated individual disease conditions. The least absolute shrinkage and selection operator (LASSO) was applied to select disease conditions significantly associated with the SF-6D scores which were converted from SF-12 physical and mental data. Confirmatory Factor Analysis (CFA) was used to validate the best disease dimensional structure in the comorbidity index. The validation in terms of prediction accuracy for HRQOL was evaluated in the 2009 MEPS. There is no overlap of people between the 2007 and 2009 databases ensuring that the validation set is independent of the data used for refining the index. Prediction errors and model R2 were compared between our refined index and Charlon Comorbidity Index, a widely used risk adjustment tool today. RESULTS: Fourteen clinical conditions were identified by LASSO and then categorized into nine disease dimensions by CFA. Statistical weights for disease dimensions were derived based on the regression model predicting HRQOL. The R2 in the model using our refined index was higher than that in the model using Charlon index (0.21 vs. 0.08). The average prediction error from the model using our index was smaller than that obtained from the model using Charlon index (0.018 vs. 0.021). CONCLUSIONS: In the context of HRQOL outcomes, comorbidity index scores estimated by our refined index had better prediction than those from Charlon index. Further validation of our refined index is needed in other measures of HRQOL and health care settings.

PRELIMINARY VALIDATION OF THE WORK PRODUCTIVITY ACTIVITY QUESTIONNAIRE (WoRQ) IN CANCER CAREGIVERS OF CHILDREN HOSPITALIZED FOR RESPIRATORY ILLNESS (WPAI: CHRI) IN GERMANY AND CANADA

Reilly M1, Mitchell I2, VoP3, Virabhak S4, Lorimer M5, Ruff M2, Seidenberg J6, Khong H7, Reilly M1, Mitchell I2, Gooch K3, VoP3, Virabhak S4, Lorimer M5, Ruff M2, Seidenberg J6, Khong H7

1Reilly Associates, New York, NY, USA, 2University of Calgary, Calgary, AB, Canada, 3Abbott Laboratories, Abbott Park, IL, USA, 4Abbott Laboratories, Singapore, Singapore, 5Lorimer Enterprises Inc., AB, Canada, 6Klinikum Oldenburg GmbH, Oldenburg, Oldenburg, Germany, 7Vottomach, Inc., Calgary, AB, Canada

OBJECTIVES: Parents of hospitalized infants experience emotional and economic stress and may need to take time away from work. However, parental burden due to lost work and decreased work productivity has not been thoroughly evaluated. The Parents of Hospitalized Infants (PHI) study was associated with higher absenteeism (p = 0.002), presenteeism (p = 0.50), and overall work productivity loss (p = 0.002). Higher PSS scores were associated with higher absenteeism (p = 0.02), presenteeism (p = 0.526), and overall work productivity loss (p = 0.02). The median LOS of hospitalized infants was 4.6 days. LOS above the median was associated with higher absenteeism (p = 0.04), presenteeism (p = 0.23), overall work productivity loss (p = 0.05). The high daily activity impairment did not vary by the validation measures. CONCLUSIONS: Preliminary WPAI CHRI validation results indicate that it is a promising instrument for evaluating the work productivity burden of parents of hospitalized children and warrants additional investigation. Moreover, the Parent Burden Study is appropriately designed to test this instrument.

Evaluating Readiness for Work in Patients with Schizophrenia: The “Readiness for Work Questionnaire” (WoRQ)

Fedke T1, Bugajski K31, Dittger H2, Egle H1, 1University of California, California, CA, USA, 2Hoffmann-La Roche LTD, Basel, Switzerland, 3Roche Products LTD, Welwyn Garden City, UK, 4Welwyn Garden, Welwyn Garden, UK, 5Roche Products LTD, Basel, Switzerland

OBJECTIVES: To develop and reliable scale “the readiness for work questionnaires” (WoRQ), which aims to evaluate working readiness in patients with schizophrenia. METHODS: WoRQ has 7 items designed to capture the patient’s readiness to work as reflected by current capacity to initiate and maintain a useful activity, then a final dichotomous work readiness judgment. The initial 7 items are rated to provide graded measurements, i.e., “strongly agree,” “agree,” “disagree” or “strongly disagree.” Content validity was then established via several sources including targeted literature reviews, development of a preliminary conceptual framework, and phone interviews with practicing clinicians to gather insights about schizophrenia and work readiness. To establish reliability, ten practicing psychiatrists were asked to assess 12 videotaped schizophrenia patients within a period of 4 weeks. Rates were asked to view each video and the supporting materials and then asked to complete the WoRQ. RESULTS: The WoRQ had better prediction than those from Charlson index. Prediction errors and model R2 were compared between our refined index using the Time Trade-Off method, and to compare the estimated results with those in other countries. METHODS: Using the Time Trade-Off (TTO) method and EQ-5D instrument, this study obtained the original data for a population sample from five cities in China including Beijing, Guangzhou, Shenyang, Chengdu and Nanjing. With each respondent valuing 13 hypothetical health states, the preference weights for EQ-5D health state were then estimated using CFA models. RESULTS: The major findings show that among the EQ-5D five dimensions for the Chinese population, mobility for utility determination seems to be the most important one, followed by pain/discomfort, self-care, anxiety/depression, and usual activity, which is similar to the order of the US population. In terms of utility score distributions across 243 states, the estimated value set for China is mostly correlated to that of Zimbabwe, compared to those of the US, UK, Japan, Korea, Argentina. CONCLUSIONS: This study is the first attempt to provide a Chinese population-based utility value set for health related quality of life, filling a critical gap when conducting health technology assessment (HTA) in general and economic cost-utility analysis in particular for the Chinese population.

Reliability and Validity of an Instrument Used in a Tobacco Cessation Intervention Study Among Patients with Diabetes

Boeher C1, Syed buah aham1,2,3,4, Apostolos A5, Lau M5, Nasution A5

1Universiti Sains Malaysia, Minden, Penang, Malaysia, 2Universiti Sains Malaysia, Pulau Pinang, Malaysia, 3Universiti Sains Malaysia, Penang, Malaysia, 4Qatar University, Doha, Doha, Qatar

OBJECTIVES: To report on the reliability and validity of an instrument used among diabetic patients with smoking intentions that was designed and tested in other countries. METHODS: Parents of hospitalized infants for respiratory illness completed a survey at the time of hospital discharge. The relationship of WPAI CHRI measures of work absenteeism, work presenteeism, overall work productivity loss, and daily activity impairment were tested relative to binary categories above and below the median values of the SF-12 physical and mental sub-scales. The primary targeted outcomes were the Parent Stressor Scale: Hospitalized Infant (PSS-IIH) and the length of hospital stay (LOS). RESULTS: Seventy-two parents completed the survey; 27 were currently employed. On average, parents reported 37.9% work absenteeism, 55.0% presenteeism, 38.2% overall work productivity loss, and 82.6% daily activity impairment. Higher STAI State scores were associated with higher absenteeism (p = 0.002), presenteeism (p = 0.50), and overall work productivity loss (p = 0.002).
OBJECTIVES: A protocol for the valuation of SF-6D health states began with telling the participants that the all-worst health state (645555) was the worst among all health states to be considered. Respondents might decide that the all-worst was worse or better than their own health state. This secondary analysis aimed to evaluate whether this practice would affect the valuation on the SF-6D, involving totally 1020 participants in Singapore. The SF-6D health states were valued using a visual analogue scale (full health: 100 points). This analysis focused on the 73 participants who valued the all-worst health state that was only one step better than the all-worst state in one or two of the six dimensions of the SF-6D (e.g. 645555 and 545654). We call these the “near all-worst” health states. We estimated the label effect (if any) by comparing the value assigned to the all-worst versus the near all-worst health states using graphical means and regression analysis. RESULTS: A total of 56/73 participants considered the all-worst state worse than death. Among them, the all-worst health state was valued significantly lower than the near all-worst health states (30 points; P<0.001), even after adjustment for the difference attributable to the one step difference in the six dimensions. Among the 17/53 participants who considered the all-worst state better than death, the valuation result was as expected according to the differences in the six dimensions. CONCLUSIONS: The procedure to tell participants that one of the states was “all-worst” had a labeling effect, but not every respondent was affected.

PM34 THE COPYRIGHT OF TRANSLATIONS OF PRO INSTRUMENTS: THE CASE OF INSTRUMENTS USED IN LUNG DISEASES
Anfray C1, Mear C2, Conway K2, Acquaro C2
1MAPI Institute, Lyon, France, 2MAPI Institute, Philadelphia, PA, USA, 3MAPI Research Trust, Lyon, France
OBJECTIVES: To evaluate how the copyright of Patient-Reported Outcome (PRO) instruments for lung diseases and their translations is handled by the developers of these instruments. METHODS: The following method was used: 1) Search in the PRO instruments libraries to identify PRO instruments developed for lung diseases that search focused on “respiratory tract diseases,” excluding common cold, influenza, rhinitis, sinusitis, and voice disorders; 2) Development of a survey to identify which copyright solutions developers adopted for the original questionnaires and their translations, and why; and 3) Mailing to the developers of the instruments identified in step 1. RESULTS: Forty-five instruments were retrieved; nine were excluded (because they were not translated). In total, 36 surveys were sent, representing 18 different authors. Seventeen surveys were sent back (47%) representing eight authors (44.4%). The analysis of the surveys showed that the copyright of 13 questionnaires was owned either by the developer and coauthors (n = 8), or by his/her institution (n = 5). For the four remaining, the developers specified that either the instruments were not copyrighted (n = 2), or in the public domain (n = 1), or the issue was unclear because of the signature of a copyright transfer with the publisher (n = 1). As for the translations, results show that those who owned the copyright of the original controlled the copyright of the translations: 1) to preserve the integrity of the translated measure; 2) to control its use; and 3) to provide easy access. When the copyright of the original is not owned by the developer, the translations follow-up is unclear and the copyright ownership of the translations is not known making it difficult to access and use them. CONCLUSIONS: The developer of the original instrument is key in determining the future of the translations of his/her instrument. A centralized control of the translations might facilitate the worldwide use of PRO instruments.

PM35 RELATIVE EFFICIENCY OF THE SF-8, SF-12, AND SF-36 IN THE GENERAL POPULATION
Wang P1, Luo N2, Tai ES3, Lee J3, Wei HL4, Thumbao J4
1National University of Singapore, Singapore, Singapore, 2Yong Loo Lin School of Medicine, National University of Singapore, Singapore, 3Singapore Health Services Research Institute, Singapore General Hospital, National University of Singapore, Singapore, 4Singapore General Hospital, Outram, Singapore
OBJECTIVES: To assess the relative efficiency of the SF-8, SF-12, and SF-36 in capturing health-related quality of life deficits associated with chronic medical conditions in the population health survey. METHODS: Data collected in a cross-sectional population health survey in Singapore was used. The SF-8, SF-12, and SF-12 physical component and mental summary scores (PCS and MCS) scores were calculated based on US weights because the local weights are currently not available. The relative efficiency (RE) of the scores in discriminating between respondents with and without one of 8 chronic medical conditions was measured using the F-statistic from the analysis of variance test. RESULTS: A total of 7529 respondents were recruited from 50 years of age. The SF-8, SF-12, and SF-36 questionnaires. The RE values of SF-12 versus SF-36 ranged from 0.858 to 1.473 for PCS and 0.435 to 1.455 for MCS. Compared with the SF-36 PCS scores, the SF-8 PCS score was less, similarly, and more efficient in 3 conditions (hypertension, diabetes, and coronary heart disease), range of RE values: 0.493-0.781. 4 conditions (stroke, lung disease, pain, and mental illness), range of RE values: 0.755-2.232, and cancer (RE value: 1.756), respectively. SF-8 MCS scores were more, similarly, and less discriminative than the SF-36 MCS score in 3 conditions (diabetes, pain, and coronary heart disease), range of RE values: 1.741-2.244, 4 conditions (stroke, cancer, and mental illness), range of RE values: 0.679-2.756, and lung disease (RE value: 0.406), respectively. CONCLUSIONS: The SF-8 and SF-12 have similar efficiency as the SF-36 in measuring health burden of chronic conditions in population health surveys. The SF-12 and the SF-8 are preferred to the SF-36 when only summary health outcomes measures are needed. The results, however, may be different when the local weights are applied.

PM36 A CHINESE POPULATION-BASED STUDY ON PREFERENCES FOR HEALTH STATES: HOW INDIVIDUAL CHARACTERISTICS MATTER?
Wu Y1, Wu Y2, Liu G3, Guo S1
1Shenyang Pharmaceutical University, Shenyang, Liaoning, China, 2Peking University, Beijing, China
OBJECTIVES: Previous studies provided inconsistent findings on the impact of individual characteristics on preferences for health states. This paper is the first attempt to use the Chinese population data to understand how individual characteristics influence preferences for EQ-5D health states. METHODS: The preferences are elicited from a sample of 1222 respondents from five cities in China including Beijing, Shanghai, Shenyang, Chengdu, and Nanjing. Through the TTO method, each respondent values 13 hypothetical EQ-5D health states. The individual characteristics are also recorded, including age, gender, race, health conditions, and lifestyle habits etc. Linear regression models are used to estimate the effect of individual characteristics on valuations, with a focus to discriminate between the effects across health state severities (mild, moderate, and severe). EQ-5D value sets are generated based on the subgroups and the general population respectively to gain insight on the systematic differences between predictions. RESULTS: The results show that two major factors, age and exercise habit of respondents are most important in influencing valuations for all health states. The valuations increase by 0.02 for every decade increase in age; the respondents who make exercise a habit assign 0.06 higher valuations than their counterparts without exercise habit. Higher valuations are also given by respondents who are married and living together, without smoking habit, with high self-rated health conditions, and particularly by those with drinking habit. In terms of valuations for different health state severities, the explanatory power of the effects decreases with the increase of severities. CONCLUSIONS: The results show that the preferences for health states differ significantly to the respondent characteristics among the populations. This paper provides preliminary evidences for policy makers, research institutes, pharmaceutical companies, or other relevant organizations focused on the quality of life for specific groups of people.

PM37 DEVELOPMENT AND USE OF A HEALTH-RELATED QUALITY OF LIFE TOOL TO HELP VETERINARIANS AND PET OWNERS ASSESS AGING CHANGES IN PETS
Lavan RP
Pfizer Animal Health, Collegeville, PA, USA
OBJECTIVES: Many measures have been developed to assess the health-related quality of life (hrQoL) in humans but few have been developed for animals. Our goal was to develop a QoL instrument, completed by pet owners, that was able to reliably detect changes in QoL in healthy dogs as they age. METHODS: An hrQol tool was built with input from pet owners and veterinarians. The prototype Qol tool was tested with 167 pet owners of healthy dogs. A second survey was completed approximately two weeks later. Each owner was allowed to self-select their dog for inclusion, based on their personal assessment of the pet’s health. The pet owners were veterinarian (n = 34) and non-veterinarian (n = 133) employees of Pfizer Animal Health. The validation process reduced the tool to 15 items in four domains (happiness, physical functioning, hygiene and mental status) and a single hrQol assessment. The proposed hrQol measure is brief (one page), has good known-groups and convergent validity, reliability and high internal consistency. RESULTS: When dogs were blocked by age into 3 year increments, the QOL score provided by the owner QoL assessment dropped dramatically for dogs assigned to the realization that the dog was “slowing down”. A calculated hrQol score, derived from a component analysis, demonstrated a statistically significant (P < 0.0001) and near-linear decline across age blocks as the dogs aged. A component analysis of many domains was also able to demonstrate a similar uniform age-related decline. CONCLUSIONS: Quality of life scoring can be used to help guide health care decisions for dogs as they age. Compared to the pet owner-derived score, using an hrQol score derived from component analysis seems to be more reflective of the gradual age-related changes in a healthy dog.