potential values. **RESULTS:** Frequency distribution of the $EQ5D_{index}$ was tri-modal and difficult to describe in summary statistics. In all, 27 possible values (11%) were responsible for 92% of all observations, 14 possible values had no observations, and 24.7% of returns had an $EQ5D_{index}$ of 1.0. There are a number of categories that are rarely used e.g., severe mobility problems and severe self care problems. There was a close correlation between weighted scale and simple addition of responses ($R^2 = 0.87$). There were 6.8% of responses with an $EQ-5D_{index} \leq 0.0$. There was a low correlation between the $EQ5D_{index}$ with the general health question of the SF36 and the arbitrary, continuous valuation of health status above. The ranking of mean estimates was intuitively correct. **CONCLUSIONS:** The number of theoretical values that are represented is sparse. The $EQ-5D_{index}$ distribution results in no easily describable parametric distribution, and the correlation with other general health measures was low. Given that these subjects are hospital treated, too many may have a health status of 1.0, and too many are also in a health status notionally equal to or worse than death. Decisions based on the $EQ5D_{index}$ now have enormous health and commercial implications. The EQ5D classifies the right health factors but the sensitivity and scoring methods need urgent revaluation: good but needs improving.

PMC18

HEALTH UTILITIES INDEX (HUI) ON-LINE QUESTIONNAIRE SYSTEM: CRITERION VALIDITY OF MULTI- AND SINGLE-ATTRIBUTE UTILITY SCORES

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OBJECTIVES: To assess the criterion validity of HUI Mark 2 (HUI2) and Mark 3 (HUI3) utility scores from a new, centralized on-line questionnaire administration system. **METHODS:** The system presents HUI questionnaires to patients and provides results to clinicians by email. Questionnaire results include responses and 32 derived variables (14 attribute levels; two overall health state vectors; 14 single-attribute utility scores; and two multi-attribute utility scores of health-related quality of life (HRQL)). SPSS code, validated to Health Utilities Inc. decision tables for determining attribute levels and published utility functions, is the criterion method for determining HUI derived variables. Testing used a data set that included questionnaire response combinations for all HUI2 and HUI3 attribute levels. Criterion validity was evaluated using percent exact agreement, and single-measure intra-class correlation coefficients (ICC), between scores from the new system and scores from the criterion method. **RESULTS:** The test data set generated 240 utility scores. There was exact agreement for 99.2% (n = 238) of the scores. Disagreement was limited to HUI2 sensation (ICC = 0.805, p < 0.01), and HUI2 overall HRQL (ICC = 0.966, p < 0.01), scores in one test case. Results were received by email from the on-line system within approximately one minute of completing each questionnaire. There were no missing or incomplete questionnaire data from the on-line system. **CONCLUSION:** The results indicate that most of the utility scores from the new on-line questionnaire system have criterion validity and there is a problem with the coding algorithm for at least one set of questionnaire response combinations associated with HUI2 sensation. The coding problem should be corrected, and more rigorous testing should be completed, before public release of the system. The system should be considered an alternative to traditional methods for future HUI data collection, especially for applications requiring immediate results such as clinical settings.

PMC19

IMPROVING THE SCALING PROPERTIES OF THE PSYCHOLOGICAL GENERAL WELL-BEING SCALE (PGWB)

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OBJECTIVES: To apply item response theory (IRT) to PGWB data to determine whether the instrument provides unidimensional assessment of well-being; identify a revised version of the measure. **METHODS:** The PGWB is a widely used patient-completed generic measure of well-being that, to date, has not been subjected to item response theory (IRT) assessment. The UK version of the PGWB was used. It consists of 22 items, each with five response options. The measure was completed by two patient groups, 103 patients with rheumatoid arthritis and 96 with adult growth hormone deficiency. Data were subjected to Rasch Analysis using RUMM 2010. **RESULTS:** Analysis revealed problems with the five option scoring system for four of the items. Three methods of analysis were followed to obtain the best fit of data: 1) rescoring of disordered items and deletion of any further misfitting items; 2) collapsing response options into three categories and rescoring further misfitting items; and 3) deletion of disordered items and any further misfitting items. The first approach gave the best fit of the data to the Rasch model in terms of overall and individual item fit and person-item separation. Three other items were then removed due to poor item fit. Subsequently, fit to the Rasch model was good, in terms of overall Item-Trait Interaction (Chi2 = 128.87, df = 95, p = 0.001), Item Fit (mean = 0.156, SD = 1.592), Person Fit (mean = −0.294, SD = 1.297) and person Separation Index (0.955). **CONCLUSION:** Application of Rasch analysis to PGWB data identified a new version of the instrument consisting of 19 items with good scaling properties. Use of the new version would improve the accuracy with which well-being is assessed in clinical studies. It is recommended that the new version is tested with other disease groups to determine whether the scaling properties are maintained.

PMC20

RELATIONSHIP BETWEEN PATIENT SATISFACTION AND PERCEIVED HEALTH STATUS

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OBJECTIVE: To examine the relationship between patient satisfaction with access to care and their perceived health status. **METHODS:** Information on patient satisfaction with access to care and perceived health status along with their demographics was extracted for people 35–64 years of age, from the Household Component of 1999 Medical Expenditure Panel Survey. Descriptive statistics were used to illustrate the characteristics of the study population. Multiple regression analysis was applied to examine the relationship between patient satisfaction and their self-rated health status controlling for age, gender, race, marital status and education level. All analyses used STATA 8.0 which is designed to analyze weighted data. **RESULTS:** A total of 8746 patients met the study inclusion criteria and were included in the study. Of these patients, 53% were females, 69.3% were married and 82% were Caucasian. The majority (44.9%) had a high school diploma and 14.5%, 6.9% and 1.7% held BS, MS and Ph.D. degrees, respectively. Patients who rated their health better scored higher in their satisfaction with access to care. In addition, higher satisfaction was found in patients with the following characteristics: being older, female, Eskimo, married and with higher education. Asian and Hispanic patients scored lower in satisfaction than Caucasian patients. **CON-**