VALIDATING LIKERT-TYPE MEASURES USING NONPARAMETRIC AND PARAMETRIC ITEM RESPONSE THEORY
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Objective: Item response theory (IRT) is one of measurement models used for evaluating the quality of quality rating scales measured. The study examined bias and regression on item response theory (KIRT) is a nonparametric IRT alternative to common approaches derived from the classical test theory and parametric IRT (e.g., Rasch) models. The objectives of this study were to identify and compare the agreement and discrepancy in item quality assessment using nonparametric and parametric IRT.

Methods: KIRT and Rasch approaches were utilized to examine psychometric properties towards Likert-type measures assessing practitioners’ performance of patient counseling in general (PC-G) and counseling on herbs and dietary supplements (PC-HDS), in a large-scale validation study. Agreement and discrepancy of item performance assessment were examined based on the underlying models, corresponding analysis techniques and assessment criteria (e.g., examining violations of unidimensional psychometric theory assumptions for KIRT, examining the undesired discrepancy between observed and model expected values for Rasch model). Results: Seven out of 10 PC-G items (70%) and six out of seven PC-HDS items (86%) were good quality items based on both approaches. Two good quality items in the KIRT model did not fit the Rasch model well (i.e., NRT fixed d = 0.89, b = 0.09), whereas the three good fitting items in the Rasch model were recognized as poor quality items in the KIRT model (violated monotonicity or local independence).

Conclusions: There was fair amount of agreement between the two approaches with retrospective to validate performance measures. The discrepancy of two approaches resulted from the differences between corresponding measurement models and the presented criteria for quality assessment. In general, the KIRT tended to identify poor quality items that didn’t intuitively match unidimensional psychometric properties, but the Rasch approach tended to identify poor quality items which might belong to a second construct.

FACTORS AFFECTING CHOICE OF ANTIBIOTIC USE IN ACUTE BACTERIAL RESPIRATORY TRACT INFECTIONS: A SURVEY IN THAI PHYSICIANS

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Objective: To examine physicians’ attitude towards factors and their relative importance affecting antibiotic prescribing for ambulatory adult patients with acute bacterial RTIs: acute rhinosinusitis (ARS), community acquired pneumonia (CAP), pharyngitis (P), exacerbation of chronic bronchitis (B). METHODS: The Internal medicine, ENT, Chest medicine, and Infectious physicians were selected to be our respondents. Based on a list of registered medical practitioners we only selected those who were employed in hospitals (251 physicians). During August - September 08, we went to see them in their practice settings and asked them to participate in the study. Finally, there were only 121 physicians who participated in our survey. Results: Total respondents were internal medicine (28.9%), ENT (27.3%), Chest medicine (26.4%), and infectious (17.5%). Most of them were male (74.6%) and worked in private hospitals (53.7%). Among the 4 diseases, they reported that the highest volume of patients were seen in the P followed by B, and CAP. Drug efficacy was reported to be the most important factor affecting the physicians’ decision on antibiotic choice across all specialties, followed by physicians’ time and work load, drug side effect, total treatment cost, and ease of use respectively (mean rank = 1.28, 2.64, 3.60, 5.31, 5.44). Drug resistance and experience of use were viewed similarly as the subsequent imperative aspects for antibiotic selection (mean rank = 5.7, 5.8). Conclusions: In acute bacterial RTIs, the drug efficacy and disease severity were found to be the most important factors affecting the physicians’ choice of antibiotic, whereas drug resistance was reported less significant. To ensure effective use of antibiotic in acute bacterial RTIs infection, the drug knowledge and evidence in varied severity stages are essential, the local recent data on drug resistance should be more well noted for practicing physician in order to increase their awareness on this issue.

DRUG UTILIZATION PATTERNS AND COSTS OF ANTIBIOTIC THERAPY AMONG PATIENTS WITH OR WITHOUT CANCER IN A 2000-BED MEDICAL CENTER IN TAIWAN
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Objective: Inappropriate antibiotic consumptions in hospitals persists as one of patient safety concerns in Taiwan despite many efforts and health policies to address this problem. We performed a secondary data analysis to describe and compare the utilization and cost of systematic antibiotic therapy in the management of patients with cancer (NCAPt) or without cancer (NCAP) for quality improvement of medical care. METHODS: The claim data of antibiotic prescriptions and corresponding cost from the 2000-bed medical center affiliated to a medical university in Taiwan were analyzed. Examining the trends and differences of antibiotic cost among NCAPt and NCAP during hospitalizations in years of 2005 and 2006, the 95% confidence intervals of antibiotic cost and relative weight of diagnosis-related group for NCAPt were compared monthly. In the first half of year 2007, the months with average cost of antibiotics greater than the breakpoint, which was derived from the prior two-year analysis, were selected to further identify the principle diagnoses and antibiotics needed to have special attention. RESULTS: There were statistically significant higher average antibiotic costs of 40% for NCAPt in July, August, October, 2005 and in January, April, May and July, 2006. Given the NTD 15,500 (USD = $4.55) was recognized as breakpoint of average antibiotic cost for cancer patients in 2007, visits hospitalized in May due to receiving radiotherapy, chemotherapy, management for acute myeloid leukemia, cervical cancer and so on should be paid more attention on infection management. Ten parental antibiotics (e.g., Tazocin, Targocid), accounted for 89.64% of total antibiotic costs in May, were selected for rigorous controlled dispersions in the second half of year 2007 and later. CONCLUSIONS: Sustained control on item quality assessed using receiving radio- and chemo-therapy and using specific extend spectrum antibiotics during hospitalizations are necessary to improve antibiotic use and infection control in hospitals.