DEVELOPING KNOWLEDGE STRUCTURE-BASED ADAPTIVE TESTING SYSTEM IN GERIATRIC MEDICAL EDUCATION

Chih-Hsueh Lin, Ching-Yu Chen, Tsai-Chung Li, Bor-Chen Kuo, Ming-May Lai, Yu-Lung Liu, Zong-En Bai, Chia-Ing Li, Yi-Chun Li

China Medical University Hospital, Taiwan

Objective: The tempo of aging in Taiwan is escalating more rapidly in comparison with those of other countries worldwide. In the face of a population aging at an alarming rate, it is of paramount importance to enhance both the quantity and quality of geriatric medicine through vigorous education and rigorous training to equip physicians with the knowledge and skills essential for meeting the needs of elderly patients.

Method: To develop the knowledge structure-based adaptive testing system in geriatric medical education, the current study constructed the domain experts' knowledge structure, students' knowledge structure and the individual remedial instructions for diagnosing medical students' learning profiles. First, we collected a total of 800 four-option multiple-choice questions from the test items appearing in the geriatrician board examinations administered by the Taiwan Association of Gerontology and Geriatrics (TAGG) from 2002 to 2009. The 800 test items were then allocated respectively to 4 objective sections and 9 domain sections of the two-way specification table according to Bloom's Taxonomy of Educational Objectives and the International Classification of Functioning, Disability and Health (ICF) endorsed by the WHO. 40 items allocated to the Comprehensive Geriatric Assessment (CGA) domain were chosen. The domain experts decided the sequence of the concepts development and relationships among these concepts to depict in a tree diagram the experts' knowledge structure for the items. Second, a paper-based test with the 40 items was then administrated to collect responses from sixth grade medical students (n=149). Ordering theory was used for estimate and construct students' knowledge structure. Third, the remedial instruction was constructed by referring to the knowledge structure of experts and students. Finally, with respect to classical test theory, the reliability, the difficulty and the discrimination of the test items were performed using Bilog-MG. The items sequence in the testing system was according to the ordering given by the links of any one knowledge structure.

Results: To construct the best domain experts' knowledge structure and get a higher Item-Total Correlation, we captured the 28-item test and 7-item test, respectively. Two knowledge structure sets were constructed. The reliability, average difficulty and average discrimination of the 28-item test were 0.339, 63.13% and 0.08, respectively. The reliability, average difficulty and average discrimination of the 7-item test were 0.695, 88.01% and 0.41, respectively.

Conclusion: The knowledge structure-based adaptive testing system we developed can shorten testing time, precisely diagnose the knowledge status of medical students and provide effective geriatrics learning.

Key words: geriatric medical education, comprehensive Geriatric Assessment, International Classification of Functioning, Disability and Health

COMPILATION OF DEMENTIA PREVENTION MANUAL FOR ELDERLY

Lee H.C.[1], Chang S.F.[1], Hsieh C.J. [2], Lin H.P. [2], Ling C.H. [2], Cheng H.S. [2], Yang S.Y., Chen M.Y.[1]

1. National Taipei University of Nursing and Health Sciences, Taiwan
2. Beitou District Health Center, Taiwan

Objective: To compile the dementia prevention manual for elderly, it combined with health educational advocacy, medical care, related benefits, and other resources. Through the pictures and text, the manual teaches people how to prevent or screen dementia, help the elderly to understand preventive knowledge and implement it into life. In this way, it can achieve the purposes of early detection and early treatment.

Method: The first part is to understand community and institutions elders whose Dementia screening experiences. The questionnaire is separated into two sections, the personal information section is mainly about basic information and health situations; the other section is about the experience and feelings of the elderly, using a semi-structured questionnaire to understand their dementia screening experiences and their needs. The second part is through the participant observation to visit the related medical resources in Beitou district in Taipei. The third part is to compile the dementia prevention manual for elderly. Through the easy descriptions, we hope to tailor a truly suitable dementia prevention manual for elderly.

Results: Through interviews we knew the most of the elderly have heard of dementia. Regarding the early dementia screening, the survey found that the elderly have no idea about this aspect of information, and many elders haven't done such check. When case individuals have a chronic disease or limited mobility, or without proper manpower and medical convenience, the elders tend to be less willing of seeking medical treatment, even won't specifically go for a check. After the compilation of dementia prevention manual was completed, we commissioned clinical dementia specialist, experienced nurses, school teachers, health service centre leader, and community health therapists to do professional proofreading; then we invited community members and family members to conduct the face validity, to made sure the manual is easy for the elderly to read, and confirmed the final version of the health manual.

Conclusion: The health manuals combine health education, medical care, social, health, welfare life and other resources to tailor a practical manual dedicated for elderly. After the Manual completed, we provide manual to some elders and their families to use. In conclusion, they indicated that the font of manual is large enough to make it easy to read; it also marks addresses and telephone numbers of medical facilities; the manual is finely designed; and the content is clear and concise. This health manual is worthy of promotion.