Item Analysis of type "A" Multiple Choice Questions from a Multidisciplinary Units assessment in a Problem Based Curriculum

Tarik Al Shaibani, PhD* Fuad Ali, MBBS, DCH** A.Halim Deifalla, MBBCh, D Ped, MSc, MD*** Ahmed Jaradat, PhD****

ABSTRACT

Multiple choice questions (MCQs) — also known as an item — is a common tool used in assessment.

Objectives: to determine the post examination validity and reliability by item analysis of a multidisciplinary units in a problem-based learning curriculum. This includes the difficulty index (DIF-I), the discrimination index (DI) and the Distractor effectiveness (DE).

Design: Cross sectional, retrospective Study.

Setting: College of Medicine and Medical Sciences, Arabian Gulf University

Method: Item analysis of 700 items and 2800 distractors were analyzed

Result: The mean DIF-I and DI were acceptable while the mean DE was variable. The reliability was in the acceptable ranges between 0.8 and 0.9. 53.68% of the distractors were non-functional distractors (NFDs). 49.81% were easy, 44.35% was acceptable and only 5.82% were difficult. The acceptable and excellent DI was almost equal; 39.79% and 42.07% respectively, whereas the poor DI was 18.13%. 37% of the items were considered ideal with acceptable difficulty and discrimination. The DI was maximum with DIF-I in the acceptable range. DE was indirectly related to the DIF-I. However, there was no relation between DE and DI.

Conclusion: The mean DIF-I, DI, and DE were in acceptable ranges. A high percentage of items was easy, and a high percentage of distractors was NFS. These distractors need to be revised to improve the DIF-I, DI and DE parameters. The reliability of the exams was acceptable. We recommend doing item analysis after each examination to identify areas of potential weakness in each item and to improve the standard of students' assessment.