

## Translation, Cross-Cultural Adaption, and Validation of the Vividness of Movement Imagery Questionnaire 2 (VMIQ-2) to Classical Arabic Language

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**Abstract :** The purpose of this study was to translate and culturally adapt the Vividness of Movement Imagery Questionnaire-2 (VMIQ-2) from English to produce a new Arabic version (VMIQ-2A), and to evaluate the reliability and validity of the translated questionnaire. The questionnaire assesses how vividly and clearly individuals are able to imagine themselves performing everyday actions. Its purpose is to measure individuals' ability to conduct movement imagery, which can be defined as "the cognitive rehearsal of a task in the absence of overt physical movement." Movement imagery has been introduced in physiotherapy as a promising intervention technique, especially when physical exercise is not possible (e.g. pain, immobilisation.) Considerable evidence indicates movement imagery interventions improve physical function, but to maximize efficacy it is important to know the imagery abilities of the individuals being treated. Given the increase in the global sharing of knowledge it is desirable to use standard measures of imagery ability across language and cultures, thus motivating this project. The translation procedure followed guidelines from the Translation and Cultural Adaptation group of the International Society for Pharmacoeconomics and Outcomes Research and involved the following phases: Preparation; the original VMIQ-2 was adapted slightly to provide additional information and simplified grammar. Forward translation; three native speakers resident in Saudi Arabia translated the original VMIQ-2 from English to Arabic, following instruction to preserve meaning (not literal translation), and cultural relevance. Reconciliation; the project manager (first author), the primary translator and a physiotherapist reviewed the three independent translations to produce a reconciled first Arabic draft of VMIQ-2A. Backward translation; a fourth translator (native Arabic speaker fluent in English) translated literally the reconciled first Arabic draft to English. The project manager and two study authors compared the English back translation to the original VMIQ-2 and produced the second Arabic draft. Cognitive debriefing; to assess participants' understanding of the second Arabic draft, 7 native Arabic speakers resident in the UK completed the questionnaire, and rated the clearness of the questions, specified difficult words or passages, and wrote in their own words their understanding of key terms. Following review of this feedback, a final Arabic version was created. 142 native Arabic speakers completed the questionnaire in community meeting places or at home; a subset of 44 participants completed the questionnaire a second time 1 week later. Results showed the translated questionnaire to be valid and reliable. Correlation coefficients indicated good test-retest reliability. Cronbach's  $\alpha$  indicated high internal consistency. Construct validity was tested in two ways. Imagery ability scores have been found to be invariant across gender; this result was replicated within the current study, assessed by independent-samples t-test. Additionally, experienced sports participants have higher imagery ability than those less experienced; this result was also replicated within the current study, assessed by analysis of variance, supporting construct validity. Results provide preliminary evidence that the VMIQ-2A is reliable and valid to be used with a general population who are native Arabic speakers. Future research will include validation of the VMIQ-2A in a larger sample, and testing validity in specific patient populations.

**Keywords :** motor imagery, physiotherapy, translation and validation, imagery ability

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