A convenient and accurate psychometric tool for the assessment of the post-myocardial infarction patient

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Background: Psychological impact is an area that is largely overlooked in the management of the post-myocardial infarction patient in the contemporary practice of cardiology. It is no secret that the psychological effect of the acute episode has far-reaching prognostic implications. Undiagnosed, and therefore untreated, psychopathology can hinder patient recovery and secondary prevention. Once identified, such patients can be helped in many effective ways.

Objectives: One reason for the lack of attention to the psychological impact would be the paucity of an effective and convenient tool for the assessment of the same by the caregiver. The tools currently used in this regard are relatively cumbersome and lengthy, so that it takes more time than a clinician can afford to carry out these tests. The objective of this study was to test a new, short and time-efficient psychometric tool against an established and commonly used one, for efficiency and accuracy.

Methods and results: Participants were a heterogeneous population of 36 volunteers from the New Castle area in Australia. Participants completed the Depression, Anxiety, Stress Score (DASS$_{21}$) questionnaire and the new Modified Index of Anxiety and Depression (MIDA) questionnaire. The time taken for each test to be completed, the need for any assistance from the test administrator during the completion of the test and the final scores for both tests for each participant were noted. Significantly more time was required to complete the traditional DASS$_{21}$ questionnaire compared to the new MIDA questionnaire for each patient. There was a high level of correlation between the scores of the two tests (Pearson correlation coefficient = 0.91). Less assistance was required in completing the MIDA questionnaire.

Conclusion: Thus it can be concluded that the MIDA test is an effective, easy to administer and accurate tool for psychometry of the post myocardial infarction patient.

Key words: Post-myocardial infarction patient – Psychometry

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Pozadie problému: Psychologický dopad je oblasť, ktorá sa v súčasnej kardiologickej praxi pri liečbe pacienta po infarkte myokardu všeobecne prehliada. Nie je tajomstvom, že psychologický účinok náhlej príhody má ďalekosiahle prognostické dôsledky. Nediagnostikovaná, a preto neliečená psychopatológia môže brzdiť vyliečenie pacienta a sekundárnu prevenciu. Keď sa zistí, pacientom možno pomôcť mnohými účinnými spôsobmi.

Cieľ práce: Jedným z dôvodov, prečo sa psychologickému dopadu nevenuje dostatočná pozornosť, môže byť nedostatok účinných a vhodných nástrojov na hodnotenie. Nástroje, ktoré sa bežne používajú, sú ťažkopádne a dlhé a zaberajú viac času, ako si môže lekár na vykonanie takýchto testov dovoliť. Cieľom tejto štúdie bolo odskúšať nový, krátky a časovo účinný psychometrický nástroj v porovnaní so zaužívaným a bežne používaným psychometrickým nástrojom z hľadiska účinnosti a presnosti.

Metódy a výsledky: Na štúdii sa zúčastnila heterogénna populácia 36 dobrovoľníkov z oblasti New Castle v Austrálii. Účastníci vyplnili dotazník DASS (dapresia, úzkosť, stres) a nový dotazník Modifikovaný index úzkosti a depresie (MIDA). Zaznamenávali sme čas potrebný na vyplnenie každého testu, potrebu asistencie počas vyplňovania testu a konečný počet bodov pre oba testy. Významne viac času si vyžadovalo vyplnenie tradičného DASS dotazníka v porovnaní s novým dotazníkom MIDA u každého pacienta. Jestvovala vysoká hladina korelácie medzi bodmi oboch testov (Pearsonov korelačný koeficient = 0,91). Menšia asistencia bola potrebná pri vyplňovaní MIDA dotazníka.

Záver: Môžeme teda zhrnúť, že test MIDA je účinný, ľahko spracovateľný a presný nástroj na psychometriu pacienta po infarkte myokardu.

Kľúčové slová: pacient po infarkte myokardu – psychometria

Introduction and objective

Most patients suffer from undiagnosed psychopathology after a myocardial infarction (1). In the contemporary practice of cardiology, psychological impact is an aspect often neglected in the management of the post-myocardial infarction patient. Proper and accurate assessment of the psychological morbidity associated with an acute infarction, and the adequate addressing of the same, is imperative in the management of the post-myo-cardial infarction patient. It is an integral aspect of the total care of the patient. Once identified, patients nee-

ding help can be assisted in many effective ways. Cardiac rehabilitation is one such effective modality of management that is known to restore, maintain, or improve both physiological and psychosocial client outcomes (2).

Lack of time and efficient means of assessment of the psychological impact seem to be the major impediments in the delivery of necessary help to those patients with psychopathology. Currently available tools for the assessment of the psychological status of the patient are relatively long and take time and learning to administer. The objective of this study was to test the efficacy of a new direct psychometric tool that we developed as an alternative to the currently used tools to rapidly and accurately assess the mental status and the mood status of the post-myocardial infarction patient. The new tool tested in this study is called the modified index of depression and anxiety (MIDA) questionnaire (**Table 1**). This tool is aimed at reducing the time to administer the test compared to the conventional tools of psychometric assessment such as the $DASS_{21}$, SF 36, Beck's depression inventory and Beck's anxiety inventory.

The MIDA questionnaire has six closed-ended questions inquiring into the mood status and anxiety status of the patient. The degree to which the patient is affected by the symptoms of depression or anxiety is weighted on a scale of 0 to 4 (with 0 being not affected at all and 4 being significantly affected). The MIDA questionnaire was tested against the $DASS_{21}$ questionnaire, the tool currently used in Australia and many other countries for the psychometric assessment of post-myocardial infarction patients prior to cardiac rehabilitation. $DASS_{21}$ is a detailed 21-item questionnaire (3). Filling-in this form can be time consuming and therefore many clinicians and cardiac rehabilitation workers at poorly staffed rehabilitation facilities fail to assess the patient's mental status using such detailed questionnaire based assessment techniques, owing to time and resources constraints. The MIDA questionnaire is expected to be quick and convenient to use. Improving efficiency while maintaining the accuracy is the primary objective in the introduction of the new tool. Thus it is hoped that MIDA would be also useful as a convenient and rapid psychometric tool for the cardiologist to use during consultation.

Method

The mental state of a heterogeneous population of 36 volunteers from the community was assessed using the traditional $DASS_{21}$ questionnaire and the new MIDA questionnaire sequentially on the same occasion.

Table 1 MIDA inventory has 6 items inquiring into the anxiety and mood status of the patient. The severity of each psychological symptom is weighted on a scale of 0 to 4.

Modified index of depression and anxiety (MIDA)	
1. I feel insecure about the future	0, 1, 2, 3, 4
2. I feel edgy, restless, anxious	0, 1, 2, 3, 4
3. I feel sad, hopeless, frustrated	0, 1, 2, 3, 4
4. I can't do anything for enjoyment	0, 1, 2, 3, 4
5. I have difficulty with sleeping	0, 1, 2, 3, 4
6. I have no appetite	0, 1, 2, 3, 4

Score: 0 – Never
     1 – Sometimes
     2 – Often (frequently)
   3 – Very often
     4 – Always

Scores for both tests were collected. The time taken to complete each questionnaire was recorded and any requests for assistance in completing the inventories were noted. Pearson's correlation coefficient was calculated to assess the correlation between the scores from the two tools.

Results and statistics

The average age of a participant in the study was 36 years (SD: 9). Minimum age was 21 years and the maximum age 65. The mean score in the $DASS_{21}$ questionnaire was 14.0 (SD: 10). The minimum score was 2 and the maximum score was 39. The mean score in the MIDA questionnaire was 6 (SD: 5). The minimum score was 0 and the maximum score was 19. Average time taken to complete the $DASS_{21}$ questionnaire was 12 minutes and to complete the MIDA questionnaire 3 minutes (p = 0.01). Many subjects (22) required the assistance of the test administrator in completing the $DASS_{21}$. The assistance required included clarification, explanation and reinterpretation of the questions. No requests for assistance were made during the completion of the MIDA questionnaire. A few subjects scored significantly high scores in the MIDA questionnaire whilst scoring low in the $DASS_{21}$. A closer scrutiny of these individuals suggested that $DASS_{21}$ failed to recognize subtle dysthymic symptoms manifesting as insomnia or lack of appetite which the MIDA score was sensitive for.

The values of both scores showed a normal distribution. The Pearson's correlation coefficient between the two scoring systems (two tailed significance) was 0.91 (p = 0.00) (**Figure 1**).
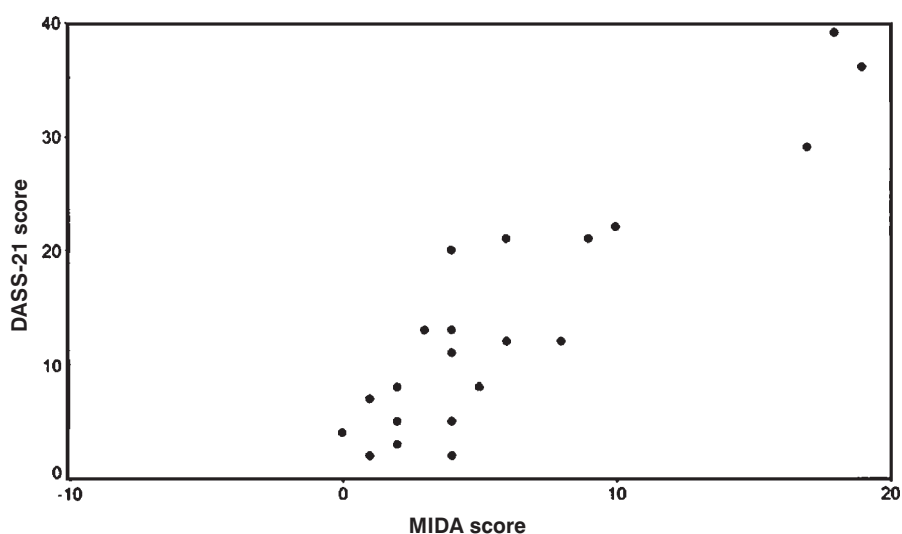
Figure 1 Relation of DASS$_{21}$ score to MIDA score of the study population [Pearson's correlation coefficient between the two scoring systems (two tailed significance) was 0.91, p < 0.05]

Conclusion

The MIDA questionnaire is a convenient and reliable index of health-related quality of life and psychological status in the evaluation of patients after a myocardial infarction. The scores of the MIDA questionnaire correlate well with the scores of the more traditional and time-tested DASS$_{21}$ questionnaire. In the busy practice MIDA score can substitute the more cumbersome and time-consuming conventional tools and indices of psychometry. Wider utilization of rapid tools such as the MIDA questionnaire may help diagnose myocardial infarction associated psychopathology more often and provide assistance to the patient where needed.

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