The Global Mental Health Assessment Tool - Primary Care Version (GMHAT/PC). Development, reliability and validity

VIMAL K. SHARMA[1], PETER LEPPING[1], ANTHONY G.P. CUMMINS[2], JOHN R.M. COPELAND[1], RASHMI PARHEE[1], PATRICIA MOTTRAM[1]

[1]Evidence Based Practice Centre, Cheshire & Wirral Partnership NHS Trust; Mental Health Resource Centre, Victoria Central Hospital, Wallasey, Wirral CH44 5UF, UK

[2]Egremont Medical Centre, 9 King Street, Wallasey, Wirral CH44 8AT, UK

The Global Mental Health Assessment Tool – Primary Care Version (GMHAT/PC) is a computerised clinical assessment tool developed to assess and identify a wide range of mental health problems in primary care. It generates a computer diagnosis, a symptom rating, a self-harm risk assessment, and a referral letter. Patients from primary care and community psychiatric outpatient clinics and a small sample of inpatients were interviewed for a period of two months using the GMHAT/PC. A proportion of patients were simultaneously rated by a psychiatrist and a general practitioner for inter-rater reliability. All patients also completed the Hospital Anxiety and Depression Scale (HAD). To conduct the interview was easy in all settings and took 10-15 minutes for patients who had psychiatric symptoms. Inter-rater agreement on mental state symptom groups ranged from 0.49 to 1 (kappa). The computer diagnosis correlated highly with the clinical diagnosis and there was a good level of agreement between HAD ratings and GMHAT/PC ratings. These data suggest that the GMHAT/PC is an easy to administer computerised tool which can be used in primary care for the standardised assessment of mental health problems.

Key words: Psychiatric interview, mental health assessment, mental health in primary care, interview schedule, standardized assessment

There is a growing recognition both in developed and developing countries that comprehensive mental health services cannot be provided without the active involvement of primary care health teams (1). The role of primary care health professionals is crucial in: a) early detection of mental disorders, including psychotic illness; b) management of common mental disorders such as depression; c) getting advice on diagnosis and management of patients with mental illness from specialists; and d) providing care (specially for physical health) to people with severe and enduring mental illness in close liaison with specialist mental health professionals/teams. A proper assessment and identification of mental health problems at primary care level is, therefore, essential in providing appropriate care to people suffering from mental disorders in any community.

In the UK, National Health Service (NHS) general practitioners are expected to identify and assess the mental health needs of their patients, as well as manage common mental disorders within primary care. Standard 2 of the National Service Framework for Mental Health (2) specifies that "any service user who contacts their primary health care team with a common mental health problem should have their mental health needs identified and assessed." In its vision for mental health care (3,4), the government proposes that by 2004 five hundred new "gateway workers" will work with general practitioners and primary care teams. Any such additional resource is a welcome move, but only an efficient use of existing and new resources will make any demonstrable impact on mental health services in primary care (5).

The World Health Report 2001 (6) states that the advantages of integrating mental health services with the primary care include easy access, reduced stigmatisation, and early detection and treatment of mental disorders. This integration also has an advantage of efficient management of resources through shared administrative infrastructure with a potential to provide universal coverage of mental health care.

Primary care physicians throughout the world have limited time and, in many instances, limited training and experience of assessing mental health needs (1,7). Other health workers such as mental health nurses or primary care nurses with training in mental health could therefore be of great value in providing mental health assessment in primary care.

The self-assessment scales and interview schedules currently available have limited value in day-to-day clinical practice. Most were developed for research purposes; many require extensive training prior to use. They predominantly cover only a limited range of clinical problems such as anxiety and depression.

There are a few clinical tools that have been developed more specifically for primary care physicians, such as the Primary Care Evaluation of Mental Disorders (8) and the Symptom Driven Diagnostic System for Primary Care (SDDS/PC) (9). Both are aimed at detecting only common mental disorders. A self-administered scale based on hand-held computers, the Quick Psycho Diagnostic Panel (QDP) (10), also covers a similarly narrow range of disorders. None of these tools helps in detecting psychotic or organic disorders. A structured assessment of long-term

mentally ill patients by their general practitioners increased their involvement in patients' psychiatric care, but was not found to be feasible for use in routine surgery appointments (11).

The Global Mental Health Assessment Tool - Primary Care Version (GMHAT/PC) has the following characteristics: a) it is easy to use in day-to-day clinical practice by general practitioners or other health care staff; b) it is able to detect common psychiatric disorders, yet not neglecting more serious conditions; c) it produces automatically a referral letter to local community psychiatric services.

The aim of the present study was to assess the feasibility of GMHAT use in primary care, to assess the inter-rater reliability between a psychiatrist and a general practitioner, to compare computerised diagnosis against clinical diagnosis, and to compare symptom ratings using GMHAT/PC against an existing standardised rating scale.

METHODS

Description of the GMHAT/PC

The GMHAT/PC is a computerised clinical assessment tool developed to assess and identify mental health problems in primary care. The first screen is for patient information and administration of the program. The assessment program starts with basic instructions giving details of how to use the tool and rate the symptoms. The introductory screens facilitate inputting of descriptive information in the following fields: presenting symptoms, and relevant past, family, and personal problems. If preferred, these details can be dictated and later typed by the practice secretary following the assessment. The following screens consist of a series of questions leading to a comprehensive yet quick mental state assessment focusing sequentially on the following symptoms or problems: worries; anxiety and panic attacks; concentration; depressed mood, including suicidal risk; sleep; appetite; eating disorders; hypochondriasis; obsessions and compulsions; phobia; mania/hypomania; thought disorder; psychotic symptoms (delusions and hallucinations); disorientation; memory impairment; alcohol misuse; drug misuse; personality problems; stressors. One question at a time appears from these respective subsections. The questions proceed in clinical order along a tree-branch structure. For each of the major clinical disorders there are one or two screening questions. If the patient does not have symptoms based on the first one or two items of a subsection, the interview moves on to the next subsection, thus saving much valuable time. Most of the questions are based on the well established interview schedule GMS-AGECAT (12).

At the end of the interview the tool suggests a diagnosis and two final screens appear: one for insertion of the names of currently prescribed psychotropic medication(s), the other for the rater's clinical diagnosis. The screen then proceeds to a menu showing the following items: a) rating scores and computer diagnosis; b) referral letter; c) care pathways. The main symptom groups on which the rating scores are based are anxiety, depression, concentration, eating disorder, hypochondriasis, phobias, obsessions, mania, psychosis, memory impairment, and disorientation. In addition, there are sections for alcohol and other drug misuse, stressful events and personality difficulties. The main computer diagnosis is derived using a hierarchical model and designed around ICD-10. The diagnostic program takes account of severity of symptoms (moderate to severe). It also generates alternative diagnoses based on presence of symptoms of other disorders.

The referral letter option prints out a letter of assessment with details of problems, symptoms with severity, and clinical diagnosis. In addition, it includes an assessment of risk of self-harm. The pathway of care option gives guidelines for care provision (developed for the Cheshire and Wirral Partnership NHS Trust) (13).

The program is based on the Delphi (Borland) System and does not need any other software programming support.

Study procedures

We interviewed patients from primary care and community psychiatric outpatient clinics, although a small number of inpatients were added to reflect both the range and severity of mental disorders seen in routine practice. All patients were asked to complete the Hospital Anxiety and Depression Scale (HAD) (14) prior to the clinical computerised assessment. All patients gave informed consent for participation in the study.

The patients in the primary care sample came from the list of a local general practitioner (AC). They were interviewed by the general practitioner in the primary care set-

Table 1 Inter-rater reliability based on symptom scores between a psychiatrist and a general practitioner using the GMHAT/PC (N=56)

Symptoms	Kappa coefficient
Alcohol misuse	1.00
Anxiety	0.79
Concentration	0.59
Depression	0.82
Disorientation	0.49
Drug misuse	1.00
Eating disorder	0.66
Hypochondriasis	Not computed
Mania	Not computed
Memory	Not computed
Obsessive-compulsive disorder	0.56
Phobia	0.83
Psychosis	0.78

Table 2 Agreement between clinical diagnosis and GMHAT/PC diagnosis

Clinical diagnosis	Computer Diagnosis								
	No mental disorder	Depression	Schizophrenia	Anxiety	Obsessive-compulsive	Organic	Alcohol	Other	Total
No mental disorder	19			2					21
Depression	2	32		6			1	3	44
Schizophrenia	1		25	2					28
Anxiety				18					18
Obsessive-compulsive					2				2
Organic									
Alcohol							2		2
Other								4	4
Total	22	32	25	28	2		3	7	119

ting (in his surgery) using the GMHAT/PC. Another investigator (PL) rated at the same time observing the interview live.

The second sample consisted of consecutive outpatients attending the Mental Health Resource Centre of the Victoria Central Hospital. They were interviewed by two psychiatrists (PL and VKS) using the GMHAT/PC. A subsample was also rated simultaneously for inter-rater reliability by a general practitioner registrar who had no prior psychiatric training. In addition, consecutive admissions to the inpatient unit at the Department of Community Psychiatry of the same hospital were similarly assessed over a period of two months.

Inter-rater reliability was assessed by the Cohen's kappa coefficient. Correlations between HAD and GMHAT/PC scores were tested by the Pearson's coefficient.

RESULTS

We interviewed a total of 119 patients: 29 (24.4%) in primary care, 80 (67.2%) in psychiatric outpatient clinics and 10 (8.4%) in an inpatient unit. The age range was 19-64 years, and the mean age was 38. Sixty-one patients (51.3%) were women and 58 (48.7%) men.

The computer-assisted interview was easy to conduct in all settings, especially in primary care. The duration of the interview ranged from 7 to 25 minutes, with a mean duration of 13 minutes. The interview was well accepted by all patients. Many patients were very pleased that the doctor asked about every aspect of their mental health. The general practitioner investigator carried on using the GMHAT/PC in his routine practice, and reported that he identified patients with some mental disorders by using the instrument, that he would have otherwise missed.

The inter-rater reliability assessment was made on 56 patients (29 in primary care and 27 in outpatient clinics). They were concurrently rated by a psychiatrist (consultant or specialist registrar) and a general practitioner (principal or general practitioner registrar). The general practitioner and the psychiatrist interviewed the patients alternately. The patients' clinical diagnosis was depression in 28 cases, anxiety disorder in 11, psychotic disorder in 7, mania in one, eating disorder in one, and obsessive-compulsive disorder in one. Seven cases had no significant mental disorder. The inter-rater reliability based on symptom scores ranged from 0.49 to 1 (kappa). The numbers of cases with symptoms of hypochondriasis, mania and memory impairment were too few to be computed for inter-rater reliability (Table 1).

Table 2 gives cross-tabulation of clinical diagnosis (ICD-10) and GMHAT/PC diagnosis. The agreement was high, except in cases of depression, where about 27% of the cases with a clinical diagnosis of depression had computer diagnoses of other disorders, mainly anxiety disorders. Two out of 44 cases were not considered as mentally ill by the computer, as they had insufficient symptoms at the time of the interview. One hundred and two cases (86%) had the same clinical and computer diagnosis.

The correlation between HAD and GMHAT anxiety scores was 0.74. The correlation between HAD and GMHAT depression scores was 0.62 (Pearson's coefficient).

DISCUSSION

General practitioners are the first line of contact for most patients with mental health problems, yet they fail to recognise a sizable number of sufferers of mental disorders (15,16). In the UK the National Service Framework for mental health expects that general practitioners and other members of the primary healthcare team will provide acceptable, relevant and informed services to their patients, including proper and early mental health assessment and management of their patients. However, an independent policy review reported gaps in implementing the National Service Framework, particularly with refer-

ence to primary care (7). We believe that the GMHAT/PC will assist this process of implementation. Our study has demonstrated the feasibility of using this method in primary care. Patients on the whole received the GMHAT/PC assessment well and said they found it helpful as it covered more aspects of their mental health than the usual consultation. Coverage of a wide range of mental disorders including psychoses and organic disorders is necessary for their early and accurate detection. The value of early detection and intervention, particularly in psychotic disorders, is well documented (17).

The format of GMHAT/PC is simple to administer as questions appearing on the screen cover only one aspect of the mental state at a time. The interviewer is expected to have some background experience of assessing mental health problems but does not require specific training to use the schedule. A satisfactory level of agreement between psychiatrist and general practitioner ratings in this study indicates that general practitioners can make reliable mental health assessments using this method, although it will require testing on a larger sample. This may become even more useful to the gateway workers in primary care as they may have somewhat more time with patients than general practitioners in their busy surgeries. Cooper (18), in a very recent editorial, highlighted the importance of processes of patient–general practitioner consultation. By contrast, a randomised study (19) of the impact of ICD-10 Primary Health Care (PHC) diagnosis and management guidelines on detection and outcome of mental health problems in primary care patients found that attempts to influence clinician behaviour through a process of adaptation and extension of guidelines were unlikely to change detection rates or outcomes. One study reported that general practitioners could routinely diagnose mental disorders if patients have severe symptoms (for example depression) (20). In another study, general practitioners' ability to detect depression bore no relationship to their observed clinical behaviour (21). A multifaceted approach is needed to improve the quality of consultation interview by using diagnostic aids (15) and interview techniques (22) to detect mental disorders. Incorporation of GMHAT/PC into the existing general practitioner desktop would further facilitate this process, not only by the general practitioners but also by practice nurses and other staff.

The computer-assisted diagnosis, which is based on symptom complexes present at the time of interview, is a useful aid in routine practice but is not intended to replace the clinical diagnosis, although the high level of agreement between the psychiatrist's clinical diagnosis and the computer-assisted diagnosis of the patients in the study is encouraging. The only serious disagreement was in cases with a clinical diagnosis of depression, as many of them were diagnosed as cases of anxiety and other disorders on the GMHAT/PC. Two of them were considered as not suffering from any mental disorder. This discrepancy was largely due to the absence of significant depressive symptoms at the time of the interview, whereas the clinical diagnosis did take historical data into account. As most cases in primary care seek help when they are symptomatic, the GMHAT/PC computer-assisted diagnosis is more likely to be accurate. The standardised method of assessment will give some consistency in diagnosis, which will be very useful for regional and national comparisons.

The other outputs from the GMHAT/PC, such as ratings of symptoms and automated referral letter, are designed for maintaining electronic patient information as well as in communicating with the specialist teams.

The correlation between HAD anxiety scores and GMHAT anxiety scores was good. The correlation for depression scores was not as high. We discovered that the discrepancy between HAD depression scores and GMHAT depression scores was largely in patients suffering from schizophrenia. It is possible that the negative symptoms of schizophrenia may have influenced the self-ratings for depression on the HAD scale.

Regular use of GMHAT/PC in primary care will certainly enhance general practitioners' and primary care workers' skills in assessing mental health problems of their patients. The GMHAT/PC ratings could also be helpful in determining outcome of their patients. Routine outcome measures are rarely used in ordinary clinical practice (23).

There is an interest in using the GMHAT/PC in other countries. It has already been translated into German. Our next step is to evaluate its use by primary care physicians in their routine practice as well as its use by the nurses in the primary care setting.

The GMHAT full version has also been developed for a more comprehensive clinical assessment in routine practice in secondary care settings.

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