

Characteristics of commonly Used anxiety and depression scales and their rational application in general hospitals

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Abstract:

Hamilton Anxiety Scale (HAMA), Hamilton Depression Scale (HAMD), 7-tiem Generalized Anxiety Disorder Scale (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Hospital Anxiety and Depression Scale (HADS) are commonly used scale tools for assessing anxiety and depression in clinic. Here the characteristics of these scales and their rational application in general hospitals were discussed. The aim of this review is to provide advice on the choice of anxiety and depression rating scales for non-psychiatrists/ psychologists in general hospitals.

Key words:

anxiety; depression; Hamilton Anxiety Scale; Hamilton Depression Scale; 7-tiem Generalized Anxiety Disorder Scale; Patient Health Questionnaire-9; Hospital Anxiety and Depression Scale.

Introduction

Anxiety and depression are both common mood disorders, which are negative emotions and subjective experiences of patients^[1]. Anxiety is an emotion of worry, fear or over-concern about the present or future^[2]. Depression is characterized by a significant and persistent low mood, even suicidal thoughts and behaviors^[3-6]. At present, patients with anxiety and depression not only exist in mental and psychological hospitals, but also in general hospitals. Usually, there are two types of patients with anxiety and depression in general hospitals. One type is that anxiety and depression were caused by physical diseases^[7], and there is a high rate of comorbidity ranging from 35.2% to 50%^[8-10]. A study has shown that the incidences of anxiety and depression in inpatients were respectively 35.61% and 65.77% in non-psychiatric departments of general hospitals, which were significantly higher than the national norm^[11]. Another type is that anxiety and depression lead to somatization symptoms, which is the reason for patients' visits^[8,12]. Therefore, in general hospitals, the existence of anxiety and depression in patients often interferes with diagnosis, increases difficulty of treatment, reduces treatment compliance, affects treatment effect and prognosis, and even worsens original diseases. All above could seriously affect recovery of chronic physical diseases. In addition, this type of patients prefer repeated visits, which could increase their economic burden and cause waste of medical resources^[13-16]. Therefore, doctors in general hospitals should possess the necessary ability of early

identification, accurate diagnosis and rational treatment strategies on patients with anxiety and/or depression. The transition of the medical model from the “biomedical model” to the “bio-social-psychotic model” is imperative in general hospitals.

The appropriate use of simple and effective screening tools is an effective way to improve the recognition rate of anxiety and depression^[17]. A variety of assessment

HAMA

HAMA introduction

HAMA was compiled by Hamilton in 1959^[18] and revised into Chinese version by the National Scale Cooperation Group in 1986^[19]. It is a classic anxiety rating scale used commonly in psychiatric clinic. There are 14 items in HAMA as shown in Table 1^[20]. Except for scoring the item of behaviour performance during interview, the other items are scored according to patients’ oral narration and subjective experience. The total score of HAMA could well reflect the severity of anxiety. It is divided into 5 levels as follows: grade 0 (0 to 6 points) means no anxiety; grade 1 (7 to 13 points) means mild anxiety; grade 2 (14 to 20 points) means moderate anxiety; grade 3 (21 to 28 points) means severe anxiety; grade 4 (≥ 29 points) means extremely severe anxiety. In addition, HAMA can be divided into two subscales of physical anxiety and mental anxiety according to the characteristics of symptoms in each item^[18]. The subscale of physical anxiety consists of 7 symptom items of muscle system, sensory system, cardiovascular system, respiratory system, gastrointestinal system, genitourinary system, and autonomic nervous system. The subscale of mental anxiety consists of 7 items including anxiety, stress, fear, insomnia, cognitive function, depressed mood, and behavior during interview.

Table 1. Hamilton Anxiety Scale (HAMA)^[18]

Order Number	Items	Circle the scores that best fit the patient's situation	Score
1	Anxious mood	worry, feel that the worst thing is going to happen, easy to provoke	0 1 2 3 4
2	Stress	tension, fatigue, inability to relax, emotional reaction, easy to cry, trembling, feeling uneasy	0 1 2 3 4
3	Fear	fear of darkness, strangers, alone, animals, cars, or people traveling	0 1 2 3 4
4	Insomnia	difficult to fall asleep, easy to wake up, not deep sleep, dreams, nightmares, night terrors, feeling tired after waking up	0 1 2 3 4
5	Cognitive function	Inattention, poor memory	0 1 2 3 4
6	Depressed mood	loss of interest, lack of pleasure in past hobbies, depression, early awakening, heavy night light	0 1 2 3 4
7	Symptoms of muscle system	muscle soreness, inactivity, muscle twitching, limb twitching, tooth tremors, trembling	0 1 2 3 4
8	Symptoms of sensory system	blurred vision, chills and fever, weakness, weakness, stinging	0 1 2 3 4
9	Symptoms of cardiovascular system	tachycardia, heart palpitations, chest pain, throbbing of vessels, fainting feelings, missing beat	0 1 2 3 4

Table 1 (continued)

Order Number	Items	Circle the scores that best fit the patient's situation	Score
10	Symptoms of respiratory	chest tightness, choking feelings, sighings, dyspnoea	0 1 2 3 4
11	Symptoms of gastrointestinal system	dysphagia, belching, dyspepsia (abdominal pain after meals, burning sensation, bloating, nausea, fullness), "working" in abdomen, borborygmi, diarrhea, weight loss, constipation	0 1 2 3 4
12	Symptoms of urinary system	frequency of micturition, urgency, amenorrhea, frigidity, ejaculatio praecox, loss of erection, impotence	0 1 2 3 4
13	Symptoms of autonomic nervous system	dry mouth, flushing, pallor, tendency to sweat, easy to "goose bump", tension headache, raising of hair	0 1 2 3 4
14	Behavior at interview	1. General behavior: nervous, not relaxed, biting fingers, clenching fists, touching handkerchiefs, facial muscles twitching, restlessness, shaking hands, frowning, stiff expression, high muscle tension, sigh-like breathing, facial pallor; 2. Physiological behavior: swallowing, snoring, fast heart rate, respiration rate over 20/min, hyperreflexia, tremor, pupil dilation, eyelid twitching, sweating, exophthalmos	0 1 2 3 4

Rational application of HAMA in general hospitals

Most of the anxiety scales are self-rating scales, which could be affected to some extent by subjective factors. The scoring results might be distorted due to the inability of understanding well the professional terminology by patients. HAMA is a rating scale and relatively objective and accurate^[21]. Many researches have confirmed the reliability and validity of HAMA^[22-24]. HAMA is a psychosomatic scale involving assessments of somatics (symptoms of different body systems), emotions (anxiety and depression) and behaviors. Another study showed that HAMA was more suitable for assessing functional anxiety and its severity in adult patients, rather than anxiety in various mental illnesses^[23]. The above

characteristics of HAMA suggest that it may be more suitable for using in general hospitals. There are two benefits of HAMA for non-psychiatrists/psychologists in general hospitals. First, the use of HAMA is reasonable because most patients in general hospitals have no history of mental illness. Second, the anxiety degree of patients can be assessed with HAMA. If anxiety is severe, doctors can quickly determine whether it is necessary to refer the patients to a mental and psychological specialist.

The clinicians who use HAMA must be trained strictly and possess some skills and experiences in diagnosing and treating mental illness. And the assessing process with HAMA takes a relatively long time. Accordingly it is difficult to use HAMA for non psychiatrists/psychologists unless they are helped by professional assessors. These limits the application of HAMA in general hospitals without a psychiatric department or psychiatrist/psychologist [24]. Moreover, the two subscales mentioned above are generically divided into physical anxiety and mental anxiety without different components describing anxiety or symptoms of body systems[25]. So the subscales are not be recommended to use in general hospitals where the symptoms of patients are usually various and the condition is complex.

HAMD

HAMD introduction

HAMD was compiled by Hamilton in 1960. It is a classic depression rating scale widely used in clinic. There are 3 editions of 17, 21 and 24 items through multiple revisions[26,27]. The 24 items of HAMD are shown in Table 2. The 17 and 21-item editions consist of the items 1-17 and 1-21, respectively. Except for scoring the items 8, 9, and 11 during clinician-patient communication, the other items was scored according to the patient's oral narration. And both are required in the item 1. The total score of HAMD could well reflect the severity of depression. Taking the 24- item scale as an example, the scoring criteria are as follows: 0-8, no depression; 9-20, mild depression; 21- 35, moderate depression; >35, severe depression[25,26]. Besides, according to the characteristics of symptoms in each item, HAMD can be divided into seven factors including anxiety/somatization, weight, cognitive impairment, day and night changes, retardation, sleep disorder and feeling of despair. The total scores of all items in each factor is named factor score. The facor scores can simply and distinctly reflect the characteristics of specific aspects in patients with depression simply and distinctly[28].

Table 2. Hamilton Depression Scale (HAMD)[27]

Order Number	Items	Circle the scores that best fit the patient's situation
1	Depressed mood	0, none; 1, only tell when asked; 2, spontaneously expressed in the conversation; 3, express this emotion by facial expressions, gestures, sounds or weeping; 4, the spontaneous language and non-verbal expression (facial expressions and movements) of the patient almost entirely express depressed emotions
2	Guilty	0, none; 1, self-blame, thinking getting others into trouble; 2, think that he/she has committed a crime, or repeatedly think about past mistakes; 3, think that the disease is a punishment for his/her own mistakes, or have delusions of guilt; 4, delusion of guilt with hallucinations or threatening fantasies
3	Suicide	0, none; 1, feeling that life is not worth living; 2, wishing he were dead, or often think about things related to death; 3, negative concept (suicidal thoughts); 4, serious suicidal behavior
4	Difficulty in falling asleep	0, none; 1, the main complaint is sometimes difficult in falling asleep (can't sleep after going to bed for half an hour); 2, the main complaint is difficult in falling asleep every night
5	Not sleeping well	0, none; 1, shallow sleep with nightmares; 2, wake up in the middle of the night (before midnight) (not including the toilet)
6	Early awakening	0, none; 1, wake up early, one hour earlier than usual, but can fall asleep again; 2, can't fall asleep after waking up early
7	Work and interests	0, none; 1, only tell when asked; 2, spontaneously express directly or indirectly lose of interest in activities, work or learning, can't insist or need to force himself/herself to work; 3, reduced activity time or efficiency; hospitalized patients participate in ward labor or entertainment for less than 3 hours per day; 4, work stopped due to current illness; inpatients do not participate in any activities or cannot complete the daily affairs of the ward without others' help
8	Retardation	Refers to slow thinking and speech, difficult in concentration, and reduced initiative 0, none; 1, mild retardation found in mental examination 2, obvious retardation in mental examination; 3, mental examination is difficult; 4, can't answer the question at all (Stiff)
9	Agitation	0, none; 1, fidgetiness during inspection; 2, obvious restlessness or increased small movements; 3, can't sit still, stand up during mental examination; 4, rubbing hands, bite fingers, pull hair, bite lips

Table 2 (continued)

Order Number	Items	Circle the scores that best fit the patient's situation
10	Mental anxiety	0, none; 1, only tell when asked; 2, spontaneous expression; 3, expressions and words reveal obvious worries; 4, obviously frightened
11	Somatic anxiety	Refers to the physiological symptoms of anxiety including: dry mouth, bloating, diarrhea, snoring, abdominal cramps, palpitations, headaches, excessive ventilation and sighs, and frequent urination and sweating 0, none; 1, mild; 2, moderate, with obvious symptoms; 3, with severe symptoms to affect life or need to be coped with; 4, seriously affecting life and activities
12	Gastrointestinal symptoms	0, none; 1, loss of appetite, but does not require others to encourage self-feeding; 2, eating requires someone to urge or request and need to apply a diarrhea or digestive aid
13	General symptoms	0, none; 1, feelings of heaviness in the limbs, back or neck, back pain, headache, muscle aches, general weakness or fatigue; 2, with obvious symptoms
14	Sexual symptoms	Refers to loss of libido, menstrual disorders 0, none; 1, mild; 2, severe. If not sure, or this item is not suitable to the patients, the score of this item would not be included into the total score
15	Hypochondriasis	0, none; 1, excessive attention to the health; 2, repeatedly thinking health issues 3, hypochondriacal delusion; 4, hypochondriacal delusion with fantasy
16	Weight loss	0, none; 1, weight loss of 0.5 kg or more in a week; 2, weight loss of 1 kg or more in a week
17	Self-awareness	0, know that he/she is sick and is depressed; 1, know that he/she is sick but think is due to bad food, environmental problems, too busy work, virus infection or need to rest, etc.; 2, completely deny he/she is a disease
18	Circadian changes	Determine if the symptoms worsen in the morning or evening, then rate it according to the degree of change. 0, none; 1, mild change; 2, severe change
19	Derealization and depersonalization	Refers to non-photorealism or nihilistic delusion 0, none; 1, only tell when asked; 2, spontaneous statement; 3, nihilistic delusion; 4, nihilistic delusion with fantasy
20	Paranoid symptoms	0, none; 1, doubtful or trivial suspicion; 2, with relationship concept; 3, delusion of reference and persecution; 4, delusion of reference and persecution with fantasy
21	Obsessional symptoms	Refers to forced thinking and forced behavior 0, none; 1, only tell when asked; 2, spontaneous statement
22	Feeling of declined ability	0, none; 1, subjective experience only when asked; 2, a patient actively expresses his/her feeling of reduced ability; 3, need to be encouraged, guided and comforted to complete the daily affairs and personal hygiene of the ward; 4, dressing, grooming, eating, making a bed or personal hygiene requires assistance from others
23	Despair	0, none; 1, sometimes suspect that "if the situation will improve," but can accept it after explanation; 2, continuously feel "no hope", but accept it after explanation; 3, feeling frustrated, pessimistic and desperate about the future, which cannot be attenuated after explanation; 4, automatically repeating the case like "I will not recover" and so on
24	Inferiority	0, none; 1, have a feeling of inferiority (I am not as good as others) only when asked; 2, automatic complaints of a feeling of inferiority (I am not as good as others); 3, The patient voluntarily stated: "I can do nothing" or "I'm inferior to others"; 4, the degree of inferiority nearly reaches to the level of delusion, such as "I am a waste" and so on
Total score		

Rational application of HAMD in general hospitals

HAMD can be used for the assessment of depressive symptoms in a variety of diseases including depression and bipolar disorder and anxiety, especially for depression^[26]. It provides a scientific basis for diagnosis, treatment and research of clinical psychology^[29,30].

However, similar to HAMA, HAMD is relatively time-consuming and labor-intensive, which limits its application in general hospitals without a psychiatric department or psychiatrist/psychologist. Furthermore, many studies have confirmed that there are overlapping symptoms between depression and anxiety^[31,32], such as low mood, insomnia, decreased memory and impaired concentration^[33,34]. Thus whether a patient is depressed or

anxious, the assessment score of HAMD may be high. Under these conditions, depression and anxiety can not be identified well with HAMD.

GAD-7 scale

GAD-7 scale introduction

GAD is one of the most common mental disorders^[33], with a prevalence of about 1.5% to 2.8% in general hospitals in China^[35, 36]. GAD-7 scale is a self-rating scale of GAD compiled by Spitzer in 2006^[37]. It consists of 7 items which are shown in Table 3. The scoring criteria of GAD-7 were as follows: 0 to 4 points are classified as no anxiety, 5 to 9 points as mild anxiety, 10 to 14 points as moderate anxiety, and 15 and above points as severe anxiety. The impairment of patient's social function also can be assessed by inquiring the influence on life, work and interpersonal relationship.

Table 3. 7-item Generalized Anxiety Disorder Scale (GAD-7)^[37]

Over the last 2 weeks, how often have you been bothered by any of the following problems					
Order Number	Items	Not at all	Several days	More than half the days	Nearly every day
1	Feeling nervous, anxious or on edge	0	1	2	3
2	Not being able to stop or control worrying	0	1	2	3
3	Worrying too much about different things	0	1	2	3
4	Trouble relaxing	0	1	2	3
5	Being so restless that it is hard to sit still	0	1	2	3
6	Becoming easily annoyed or irritable	0	1	2	3
7	Feeling afraid as if something awful might happen	0	1	2	3
Total Score					

If you find yourself having the above symptoms, how difficult have these symptoms made to your family life, work, and interpersonal relationship? Not difficult at all __, somewhat difficult ____, very difficult ____, extremely difficult ____

Rational application of GAD-7 in general hospitals

GAD-7 is usually used to screen GAD and assess its severity^[37], and also for other anxiety spectrum disorders such as panic disorder, social phobia and posttraumatic stress disorder^[37-39]. GAD-7 is a patient self-rating scale which is concise, convenient and time-saving. Outpatients are easy to complete GAD-7 by themselves in a short visit time, and help doctors quickly screen anxiety. These characteristics of GAD-7 indicate that it is suitable to use for doctors in general hospitals, especially non-psychiatrists/ psychologists^[16,38,40]. GAD-7 has been used generally in multiple departments such as traditional chinese medicine clinic, cardiovascular clinic, psychology clinic and in-patient department in general hospitals^[7,16,38,40-43]. The results of above domestic researches show that the reliability and validity of GAD-7 is good, and are consistent with the results of foreign studies^[37,44]. These studies provide practical basis for diagnosis and treatment of psychosomatic diseases in general hospitals.

However, the assessment of anxiety is not comprehensive due to some characteristics of GAD-7 including inadequate content about assessment of physical symptoms and short evaluation period (for the last 2 weeks). Moreover, since GAD-7 is a self-rating scale, the assessment results are inevitably affected by the education level and cognitive function of patients, and might not be as objective and accurate as the rating scale. Of course, GAD-7 is still widely used in general hospitals because of its good reliability and simplicity. It is recommended that medical staff properly provide non-inductive scale interpretation and fill-in guidance based on patients' education level and comprehension ability.

In addition, GAD-7 needs to set the "optimal cut off value (equilibrium demarcation point)", which can balance the sensitivity and specificity of the scale and reduce the false positive/negative rates to the lowest^[24]. Spitzer^[37] thought that the sensitivity and specificity of GAD-7 was best when the cut-off value is 10 points. However, some factors from patients can influence on setting the optimal cut-off value, such as the patients' family origin, social status, cultural differences, understanding ability and so on^[43]. So the optimal cut-off value of 10 points might not be suitable for all patients, and needs adjustment depending on the patients' situation. In some studies, the optimal cut-off values used by the clinicians of cardiovascular clinics, Chinese medicine clinics, psychology clinics and psychiatric clinics are 10, 6, 7, 12 points, respectively^[38,42,43,45]. As the cut-off value increases, the specificity and positive predictive value increase, but the sensitivity and negative predictive value decrease^[38]. A domestic study shows that when taking 3 points as a cut-off value, the sensitivity and specificity of GAD-7 were 100% and 33.0% respectively, suggesting that patients with negative scores could be excluded as GAD. When taking 15 points as a cut-off value, the sensitivity and specificity of GAD-7 were 27.3% and 100% respectively, suggesting that patients with positive scores could be diagnosed as GAD^[46]. Therefore, the different optimal cut-off values of GAD-7 are allowed to set in different departments of general hospitals according to their respective purposes of diagnosis and treatment.

PHQ-9

PHQ-9 introduction

PHQ-9 is a self-rating scale compiled based on the content of Major depressive disorder (MDD) in Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV)^[47]. It is used to screen and diagnose five common dysfunctions including depression, anxiety, substance abuse, eating disorders and somatization disorders. PHQ-9 consists of 9 items which are shown in Table 4. The scoring criteria of PHQ-9 for depression are as follows: 0-4, minimal; 5-9, mild; 10-14, moderate; 15-19, moderately severe; 20-27, severe^[48]. Notably, as long as the item 9 is positive, patients should be diagnosed with depression. The impairment of social function of patients also can be assessed by inquiring the influence on life, work and interpersonal relationship.

Table 4. Patient Health Questionnaire-9 (PHQ-9)^[48]

Over the last 2 weeks, how often have you been bothered by any of the following problems					
Order Number	Items	Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself - or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9	Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3
Total Score					

If you find yourself having the above symptoms, how difficult have these symptoms made to your family life, work, and interpersonal relationship? Not difficult at all ____, somewhat difficult ____, very difficult ____, extremely difficult ____

Rational applications of PHQ-9 in general hospitals

There are some defects of PHQ-9, including inadequate physical symptom assessment, short evaluation period, non-comprehensive assessment of depression, and lack of specific typing of depression^[49]. Despite of these defects, PHQ-9 possesses the definite diagnostic value for depression, functions of assessment of depression severity and patients' social function and provide a lot of informations for doctors to choose treatment plans^[50]. PHQ-9 is short, economical, easy to understand and calculate. It also has good reliability and validity in many studies on inpatients (elderly and adolescents) in general hospitals and community^[51-58]. The above characteristics of PHQ-9 show that it is suitable for doctors to use in general hospitals, especially for non-psychiatrists/psychologists. As PHQ-9 is a self-rating scale, it is recommended that medical staff properly provide non-inductive scale interpretation and fill-in guidance based on patients' education level and comprehension ability.

Similar to GAD-7, PHQ-9 also needs to set the "optimal cut-off value". In some studies, there are different cut-off values among different populations: the optimal cut-off value was 7 points in 1045 Chinese general population; 8 points in 582 inpatients in general hospitals; 11 points in adolescent populations^[59]. Other studies showed that PHQ-9 has high sensitivity and specificity at 10 cut-off points^[51, 60-62]. Collectively, PHQ-9 has good sensitivity and specificity at cut-off scores of 8-11^[63].

Table 5. Hospital Anxiety and Depression Scale (HADS)^[64]

Order Number	Subscales	Items	Circle the scores beside the reply that is closest to how you have been feeling in the past week
1	A	I feel tense or 'wound up'	0, Not at all; 1, From time to time, occasionally; 2, A lot of the time; 3, Most of the time
2	D	I still enjoy the things I used to enjoy	0, Definitely as much; 1, Not quite so much; 2, Only a little ; 3, Hardly at all
3	A	I get a sort of frightened feeling as if something awful is about to happen	0, Not at all; 1, A little, but it doesn't worry me; 2, Yes, but not too badly; 3, Very definitely and quite badly
4	D	I can laugh and see the funny side of things	0, As much as I always could; 1, Not quite so much now; 2, Definitely not so much now; 3, Not at all
5	A	Worrying things go through my mind	0, Only occasionally; 1, From time to time but not too often; 2, A lot of the time; 3, A great deal of the time
6	D	I feel cheerful	0, Most of the time; 1, Sometimes; 2, Not often; 3, Not at all
7	A	I can sit at ease and feel relaxed	0, Definitely; 1, Usually; 2, Not often; 3, Not at all
8	D	I feel as if I am slowed down	0, Not at all; 1, Sometimes; 2, Very often; 3, Nearly all the time
9	A	I get a sort of frightened feeling like 'butterflies' in the stomach	0, Not at all; 1, Occasionally; 2, Quite often; 3, very often
10	D	I have lost interest in my appearance	0, I take just as much care as ever; 1, I may not take quite as much care; 2, I don't take as much care as I should; 3, Definitely
11	A	I feel restless as I have to be on the move	0, Not at all; 1, Not very much; 2, Quite a lot; 3, Very much indeed
12	D	I look forward with enjoyment to things	0, As much as I ever did; 1, Rather less than I used to; 2, Definitely less than I used to; 3, Hardly at all
13	A	I get sudden feelings of panic	0, Not at all; 1, Not very often; 2, Quite often; 3, Very often indeed
14	D	I can enjoy a good book or radio or TV program	0, Often; 1, Sometimes; 2, Not often; 3, Very seldom
Total Score			

Note: Doctors are aware that emotions play an important part in most illnesses. If your doctor knows about these feelings he will be able to help you more. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought out response.

HADS

HADS introduction

HADS is a self-rating scale compiled by Zigmond and Snaith in 1983^[64]. It is mainly used for screening anxiety and depression in general hospitals^[64, 65]. There are 14 items in HADS as shown in Table 5. Among them, 7 items constitute anxiety subscale (HAD-A) and the other 7 items constitute depression subscale (HAD-D). The scoring criteria of two subscales are as follows: 0 to 7 points is classified as no anxiety or depression; 8 to 10 points as suspicious anxiety or depression; 11 or more scores as definite anxiety or depression.

Rational application of HADS in general hospitals

As a screening scale, HADS can quickly assess patients' anxiety and depression with good reliability and validity^[66]. HADS meets the requirements for psychometrics and can be used as a good screening tool of anxiety and depression in general hospitals ^[65]. The difference between HADS and other scales is that the items about assessment of physical symptoms are eliminated. The purpose is to minimize the influence of overlap symptoms between physical diseases and emotional status and to effectively distinguish when anxiety/depression and physical diseases are comorbid. Meanwhile, the use of HADS is simple due to fewer items. Therefore, HADS has been considered to have more advantages in assessing anxiety and depression in general hospitals ^[24].

Although the comorbidity of physical diseases and anxiety/depression are common for patients in general hospitals, there are still many patients whose physical symptoms are mainly caused by anxiety and depression, namely somatic symptoms. If using HADS for assessment of patients with somatic symptoms, it is possible that doctors can not accurately judge if the patients' somatic symptoms are closely related to anxiety and depression. because of lack of the items about assessment of physical symptoms in HADS. This may lead to misdiagnosis of somatic symptoms. Therefore, we think that HADS can only be used in certain populations without physical symptoms. Furthermore, the item incompleteness of HADS limits the assessment of severity of anxiety and depression, so sometimes it is necessary to use HADS in combination with other scales^[24]. In general hospitals, the accuracy of diagnosis and treatment of psychosomatic diseases might reduce when HADS is used by non-psychiatrists/ psychologists with insufficient experience on and the other 7 items constitute depression subscale (HAD-D). The scoring criteria of two subscales are as follows: 0 to 7 points is classified as no anxiety or depression; 8 to 10 points as suspicious anxiety or depression; 11 or more scores as definite anxiety or depression.

psychosomatic diseases. Thus HADS is more suitable to be used for quickly assessing the current emotional status of patients who have no physical symptoms or have been diagnosed with organic physical diseases.

Conclusion

With the transition of modern medicine from "biomedical model" to "bio-psycho-social medical model", the psychological problems of patients are increasingly attracting attentions of medical staffs. Although there are higher visiting rates of patients with anxiety and depression in non-psychiatric departments in general hospitals, many problems about the diagnosis and treatment of anxiety and depression still arise because of the lack of experience of non psychiatrists/psychologists. For example, misdiagnosis, lack of experience of degree assessment, nonstandard treatment and poor treatment compliance of patients. Therefore, it is of great significance for use of a convenient, economic and accurate scale of anxiety and depression in general hospitals. HAMA, HAMD, GAD-7, PHQ-9 and HADS are used widely for assessment of anxiety and depression. They have been proven to have good reliability and validity. Among them, HAMA and HAMD are more comprehensive and thus should be used in priority in general hospitals with psychiatric departments. GAD-7 and PHQ-9 are self-rating scales, and can be completed independently by the patient. They are suitable to be popularized and applied in general hospitals without psychiatric departments and to be used in epidemiological investigations. HADS is more suitable for assessment of

patients who have no physical symptoms or have been diagnosed with organic physical diseases. It is not recommended to be widely used for screening and diagnosing psychosomatic diseases in general hospitals.

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