Supplementary Materials (the following were created by the author)

Box S1. An innovative 5-Step Patient Interview approach for providing mental health care in primary health care centres

Box S2. Narrative therapy used in the 5-Step Patient Interview approach

Table S1. Sensitivity and specificity of the 5-Step Patient Interview in diagnosing mental health problems compared with expert psychiatric interviews and the PHQ-9 and GAD-7

Table S2. Sensitivity and specificity of the 5-Step Patient Interview in the diagnosis of depression and anxiety compared with an expert psychiatrist

Table S3. Sensitivity and specificity of the 5-Step Patient Interview in determining the need for psychotherapy or antidepressant (SSRI) therapy compared with an expert psychiatrist

Box S1. An innovative 5-Step Patient Interview approach for providing mental health care in primary health care centres (AlKhathami AD approach)

Step 1: Suspect mental health problems.

Primary care physicians should suspect mental health problems in patients who show any of the following:

1. Frequent clinic consultations
2. Uncontrolled chronic diseases or physical symptoms
3. Sleep disturbances

If the above indicators are absent, the patient likely does not have a hidden mental health problem; the physician can proceed with the traditional patient interview.

Step 2: Screen for suspected stress-related mental health problems.

Two screening measures are included in the patient interview:

A. Screen for hidden agendas, concerns, or impaired thinking/judgement* using ICE interview questions:

- ***I (idea)*:** What do you think is the cause of your present symptoms or uncontrolled sugar or blood pressure….?
- ***C (concern)*:** Why do you worry about your present symptoms, uncontrolled sugar, or blood pressure….?
- ***E (expectation):*** What do you expect me to do for your symptoms, uncontrolled sugar, or blood pressure….?

These actions augment the doctor-patient relationship by discovering the patient's feelings and worries.

***Thinking/judgement: If delusions or hallucinations exist, the patient must be referred to a psychiatrist immediately.

B. Screen for psychological stress:

Psychological stress and its severity must have existed for at least the past two weeks or longer to qualify as a mental health problem.

- ***Sleep:*** *enquire about three different situations:*
  1. "When you put your head on the pillow, do you sleep easily or have difficulty sleeping?" Early insomnia occurs in mild cases of stress.
  2. "When you sleep, do you often wake up?" Interrupted sleep occurs in moderate-to-severe cases of stress.
- ***Performance and Concentration:*** Compare present performance and concentration with that before the occurrence of symptoms. A marked decline indicates a moderate-to-severe case of stress.
- ***Relationship: "***How are your relationships with people close to you? Are you like to be alone? Easy anger?" A positive response indicates moderate-to-severe stress.

Note: If there are no hidden agendas or stress, the patient usually does not require mental health care; traditional care should be appropriate to help the patient.

Step 3: Scope best service options to address more severe mental health problems.

Patients with the following situations need to be referred to mental health specialists:

- Suicidal thoughts
- Postpartum depression
- Psychotic symptoms (e.g., hallucinations or delusions)
- Childhood mental health problems apart from enuresis
- Bipolar disorder
- Drug abuse
- Alcohol abuse
- Personality disorders
- Dementia symptoms
- Unresponsive cases

Step 4: Diagnose depression and anxiety.

The diagnosis is based on the WHO mhGAP Guide version 2.0 (2016). After excluding the cases that need a specialist referral (step 3), two disorders remain that are to be diagnosed and managed at the primary health care level (depression and anxiety disorders with ≥2-week duration).

A. **Depression**. One of the following criteria of PHQ-2 is needed to diagnose depression:
   - *Sad mood*: "Do you feel happy or sad?"
   - *Loss of interest*: "Are you still interested in things that made you happy in the past, or have you lost interest?"

B. **Anxiety.** One of the following criteria of GAD-2 is needed to diagnose anxiety:
   - *Anxious and tense mood*: "Do you feel anxious or tense most of the time?"
   - *Excessive fear or worry (fear of future; avoiding meeting people, increased heart rate, sweating)*; Ask about panic attacks and post-traumatic symptoms.

Define the severity degree of depression and anxiety based on Step 2 findings, screening for stress (mild or moderate-to-severe cases).

NB The diagnosis is based on PHQ-2 and GAD-2 plus the symptom findings in Steps 1 and 2 in a period of ≥ 2 weeks.

Step 5: Manage mild mental health problems.

The management is based on the WHO mhGAP Guide version 2.0 (2016). There are two rules:

- Rule 1: Mild cases (only presence of early insomnia) – start with sleep hygiene, relaxation, and regular exercise before considering antidepressants.
- Rule 2: Moderate-to-severe cases (interrupted sleep; declined performance and concentration; and or isolation or easy anger)– consider antidepressant medication, except in two situations:
  i. The patient who is experiencing mood changes from side effects of medication, such as beta-blockers, steroids, or hormonal contraceptives. The physician should modify the medication and reassess the patient at a one-week follow-up.
  ii. The patient reports an inability to cope with life events such as loss, responsibilities, or conflict with others. The management action is to apply narrative therapy as the first step before starting medication. Then reassess the patient. If the patient does not respond well to the narrative therapy, start full mental health management with regular follow-up.
- **Full management plan includes:**
  A. *Non-pharmacological management* includes all:
  - Regular walking or exercise
  - Avoid arguments and self-blaming particular in the first two weeks
  - Relaxation technique using deep breathing
  - Regular follow-up with attention on the improved symptoms then discuss the none.

  B. *SSRI drug*, such as escitalopram 10mg, and fluoxetine 20mg, is the first choice. Start with a half dose for six days then a full dose. When get fully recovered continue for nine months on remission status then tapering dose and stop it in one year period since started

Follow-up management visits

Assess areas of improvement, i.e., stress indicators (step-2), depressive and anxious symptoms with focusing on positive progress. The second visit should be scheduled one week after the first for support and reassurance; the third visit could be scheduled 2 to 3 weeks later, depending upon patient need.

ICE, Ideas, Concerns, Expectations (interview technique); WHO, World Health Organization; mhGAP, Mental Health Gap Action Program; PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7; ICD-11, International Classification of Diseases 11th revision; SSRI, selective serotonin reuptake inhibitor.

Box S2: Narrative therapy used in the 5-Step Patient Interview approach (AlKhathami approach)

Narrative therapy is a psychological approach that seeks to adjust the stories patients tell about their lives in order to bring about positive change and better mental health. Principles to consider:

- Persistent stress overwhelms a patient until they can no longer tolerate it.
- Subsequently, they feel tense or depressed because they cannot cope with their problems.
- Each person has psychological capacity.
- Narrative therapy supports and helps patients to cope with their problems.

Steps for narrative therapy:

- Let the patient identify a friend's name. Then let the patient imagine their friend has the same problem as their own. (The physician should re-tell the story to the patient as if the friend is suffering).
- Ask the patient to help their friend solve the problem.
- Logically, what would the patient advise that friend?
- Ask the patient to apply personally what he/she said. Sometimes patients suggest an escape approach; let the patient think about the disadvantage of such a solution, hoping the patient will change the approach to a more logical approach.

On the follow-up visits:

- Encourage any progress, even if it is minimal.
- Do not assume that the problem will be solved in one session; follow-up needs to be performed weekly until the situation improves.

Table S1. Sensitivity and specificity of the 5-Step Patient Interview in diagnosing mental health problems compared with an expert psychiatrist and the PHQ-9 and GAD-7

		Mental health problem diagnosis by an expert psychiatrist			Mental health problem diagnosis by PHQ-9 and GAD-7		
		Yes	No	Total	Yes	No	Total
Mental health problem diagnosis by the 5-Step Patient Interview	Yes	221	41	262 (35.8%)	253	9	262 (35.8%)
	No	9	461	470 (64.2%)	130	340	470 (64.2%)
	Total	230 (31.4%)	502 (68.6%)	732	383 (52.3%)	349 (47.7%)	732

PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7.

Table S2. Sensitivity and specificity of the 5-Step Patient Interview in the diagnosis of depression and anxiety compared with an expert psychiatrist

		Depression diagnosed by an expert psychiatrist			Anxiety diagnosed by an expert psychiatrist		
		Yes	**No**	**Total**	**Yes**	**No**	**Total**
The 5-Step Patient Interview approach	**Yes**	164	55	219 (29.9%)	160	44	204 (27.9%)
	No	12	501	513 (70.1%)	13	515	528 (72.1%)
	Total	176 (24.0%)	556 (76.0%)	732	173 (23.6%)	559 (76.4%)	732

In the diagnosis of depression, Sensitivity: 164/176=93.2%; Specificity: 501/556=90.1%, with significant correlation (x^2=453.13, p-value<0.0001).

In the diagnosis of anxiety, Sensitivity: 160/173=92.5%; Specificity= 515/559=76.4%, with significant correlation (x^2=425.16, p-value<0.0001).

Table S3. Sensitivity and specificity of the 5-Step Patient Interview in determining the need for psychotherapy or antidepressant (SSRI) therapy compared with an expert psychiatrist

		Expert psychiatrist identified the need for psychotherapy		
		Yes	No	*Total*
5-Step Patient Interview identified the need for psychotherapy	Yes	255	0	255 (34.8%)
	No	0	477	477 (65.2%)

	Total	255 (34.8%)	477 (65.2%)	732

		Expert psychiatrist identified the need for antidepressants*		
		Yes	No	*Total*
5-Step Patient Interview identified the need for antidepressants*	Yes	152	14	166 (22.7%)
	No	29	537	566 (77.3%)
	Total	181 (24.7%)	551 (75.3%)	732

SSRI, selective serotonin reuptake inhibitor, *Antidepressants included selective serotonin reuptake inhibitors