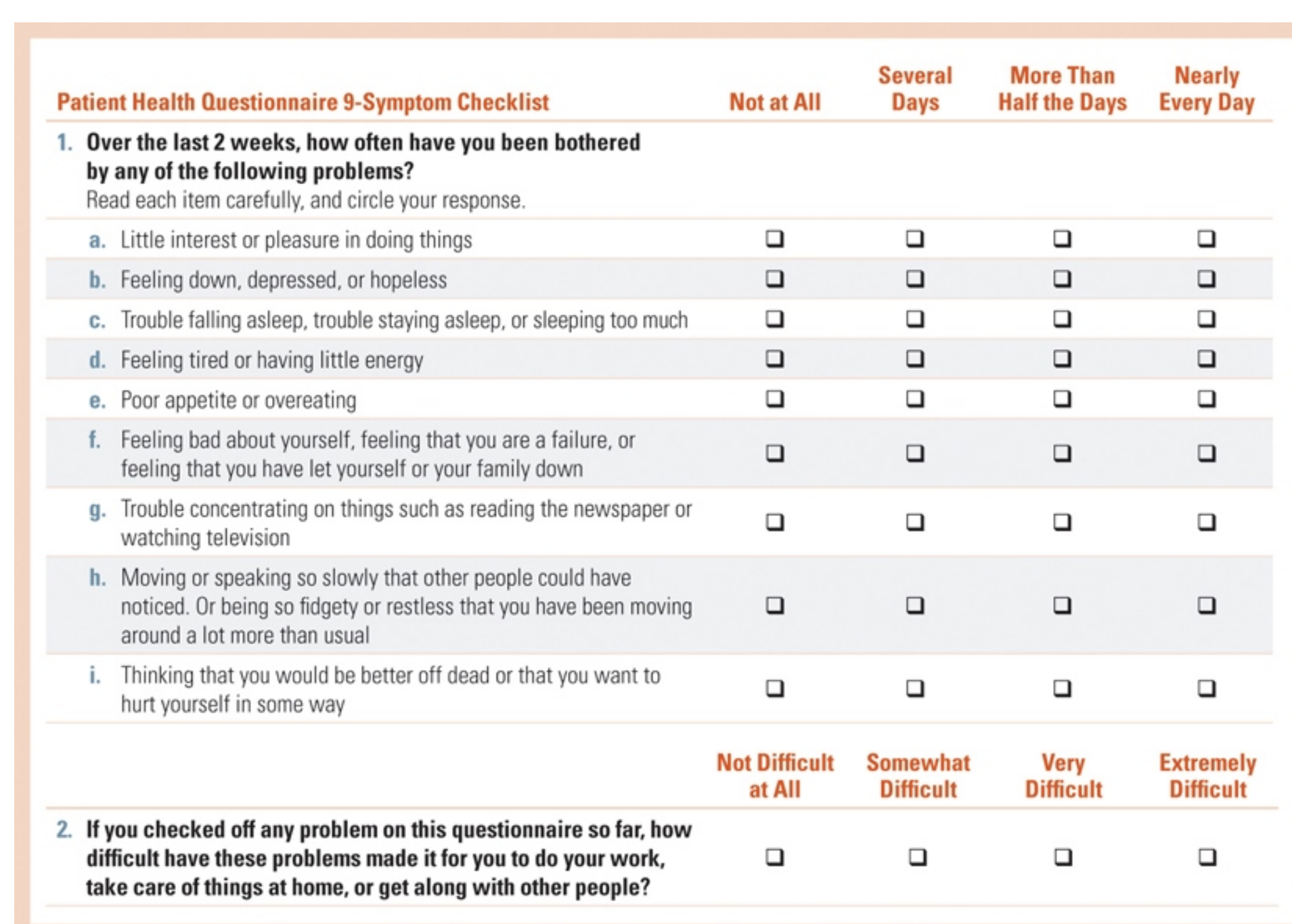


BACKGROUND

- Only 1/3 to 1/2 of patients with Major Depressive Disorder (MDD) are detected in primary care setting.¹
- Only ½ of those detected as having MDD actually receive treatment. ¹
- Multiple medical etiologies can manifest as depressive symptoms.
- Description of symptoms is often vague.
- Time constraints, lack of access to mental health specialists, provider discomfort with symptom management, and insufficient training - all interfere with primary care providers' ability to accurately and quickly assess. ²⁻⁹

PURPOSE

To enhance primary care providers' ability to identify the similarities and differences in the presentation of depressive symptoms among thyroid disorders, vitamin deficiencies and depressive disorders and offer clinical recommendations for evaluation.



Patient Health Questionnaire 9-Symptom Checklist

1. Over the last 2 weeks, how often have you been bothered by any of the following problems?

Read each item carefully, and circle your response.

	Not at All	Several Days	More Than Half the Days	Nearly Every Day
a. Little interest or pleasure in doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Feeling down, depressed, or hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Trouble falling asleep, trouble staying asleep, or sleeping too much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Feeling tired or having little energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Poor appetite or overeating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Feeling bad about yourself, feeling that you are a failure, or feeling that you have let yourself or your family down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Trouble concentrating on things such as reading the newspaper or watching television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Moving or speaking so slowly that other people could have noticed. Or being so fidgety or restless that you have been moving around a lot more than usual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Thinking that you would be better off dead or that you want to hurt yourself in some way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

	Not Difficult at All	Somewhat Difficult	Very Difficult	Extremely Difficult
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ASSESSMENT

- PHQ-9 or Geriatric Depression Scale
- TSH or Thyroid panel
- Vitamin B12 level
- Vitamin D level

SHARED DEPRESSIVE SYMPTOMS

Depressive Symptoms	Thyroid Disorder	Vitamin B Deficiency	Vitamin D Deficiency	Major Depressive Disorder
Loss of Interest in Activities	Mild ³⁰		Mild ²⁰	Prominent ³⁶
Affective Symptoms	Moderate-Depressed Mood Anxiety Irritability/Agitation ^{27,29-34}	Moderate-Depressed Mood Anxiety Irritability/Agitation ¹⁰⁻¹⁴	Mild Depressed Mood Anxiety Agitation ²⁰⁻²³	Prominent-Depressed Mood and Anxiety Mild Irritability Agitation ^{33,34}
Appetite and Weight Changes	Mild-Hypo- weight gain Hyper-weight loss ^{30,33}	Decreased appetite ^{37,38}		Reduced or enhanced appetite with corresponding weight loss or gain ³³
Sleep Disturbances	Moderate-Early and Terminal Insomnia ^{30,33}	Moderate-Unspecified sleep disturbances ¹⁴	Moderate-Excessive daytime sleepiness ^{21,24}	Prominent - Middle and Terminal insomnia and hypersomnia ^{33,35}
Fatigue	Mild ³²	Prominent ¹¹⁻¹³	Mild ^{21,24}	Mild to Prominent ³⁵⁻³⁷
Changes in Psychomotor Activity	Mild – Retardation ³²			Prominent-Retardation ^{34,35}
Changes in Cognition	Mild changes in Concentration and Memory ^{27,28,30,32,34,}	Prominent changes in Concentration and Memory ^{10,11,14-19}	Mild changes in Memory ²¹	Prominent changes in Memory ³⁴
Suicidal Ideations				Prominent ^{33,37}
Excessive Feelings of Guilt	Mild ³³			Prominent ³³
Misc.	Generalized somatic complaints ³⁰	Heart palpitations, ataxia, abnormal reflexes, paresthesia, hallucinations, and mania ^{10,11,13,14,17}	Non specific muscle pain ^{21,24}	Possible comorbid medical conditions or somatic complaints ³⁶
Risk Factors	Family history	Over 60, taking proton pump inhibitor or Metformin, vegetarian ^{11,13,17}	Over 65 years old, insufficient sunlight, breast fed infants, dark skin, malabsorption issues, obesity, anticonvulsant or glucocorticoid therapy, renal disease. ^{20,25,26,40}	Previous psychiatric history ³⁷

CLINICAL RECOMMENDATIONS

- As several depressive symptoms are shared among the disorders to varying degrees, detailed questioning may assist in teasing out reports of indistinct depressive symptoms.
- Knowledge of the similarities and differences among thyroid disorders, vitamin deficiencies, and MDD should prompt use of appropriate screening tools, including lab work to rule out differential diagnoses.

DISCUSSION

SIMILARITIES

- Thyroid disorders, Vitamin B Deficiency, Vitamin D Deficiency, and Major Depressive Disorder all have some degree of mild to prominent affective symptoms.
- **Sleep disturbances, cognitive changes, and fatigue** are found across all disorders.

DIFFERENCES

- **Previous psychiatric history, loss of interest in activities, affective symptoms, sleep disturbances, changes in psychomotor activity, suicidal ideations, and excessive feelings of guilt** are all prominent only in Major Depressive Disorder.
- **Fatigue** is prominent in Vitamin B deficiency.
- **Depressed mood, anxiety, and irritability and/or agitation** are moderately expressed in thyroid disorder and Vitamin B deficiency but mildly expressed in Vitamin D deficiency.
- Thyroid disorder and MDD sleep disturbance is most often characterized by **late insomnia or hypersomnia**, whereas Vitamin D deficiency presents with **excessive daytime sleepiness**.
- **Cognitive changes** are also prominent in Vitamin B deficiency.
- **Appetite** is decreased in Vitamin B12 deficiency, but weight is variable in all others.
- While comorbid physical symptoms are possible with all the disorders, specific medical and/or mental health symptoms may accompany deficiencies in Vitamins B and D.
- Risk factors vary among the disorders.

BIBLIOGRAPHY

References available upon request.