



SUBOPTIMAL HEALTH STATUS QUESTIONNAIRE (SHSQ-25) USER GUIDE

OVERVIEW OF SUBOPTIMAL HEALTH STATUS

What is suboptimal health status?

- Suboptimal health status (SHS) is a physical state between health and disease characterised by fatigue and a constellation of other physical symptoms but no diagnosable disease condition.^{1,2}
- It is a multidimensional subclinical state encompassing five subdomains: fatigue, cardiovascular system, digestive tract, immune system, and mental status.³
- It is also known as medically unexplained symptoms (MUS) or functional somatic syndrome.^{4,5}

Why should I use the questionnaire?

The suboptimal health status questionnaire (SHSQ-25, overleaf) allows primary care providers to^{2,3}:

- 1) Assess SHS.
 - Individuals with SHS suffer from symptoms such as chronic fatigue, headaches, dizziness, depression, anxiety, non-specific pain and functional disorders.⁶ These individuals may present with reduced organ function and physical functionality, energy loss, low cognitive and emotional performance or decline in social functioning.⁷
- 2) Identify patients that may benefit from lifestyle counselling and holistic intervention.
 - Holistic health interventions including healthy diet, physical activity, adequate rest and effective stress management could reverse SHS and promote health.^{8,9}

How is the questionnaire administered?

- The self-rated questionnaire asks an individual to rate a specific statement on a five-point Likert-type scale, based on how often they suffered specific health complaints in the preceding three months: (1) never or almost never, (2) occasionally, (3) often, (4) very often, and (5) always.³
- Every question is answered by marking the appropriate box with an 'x'. All questions should be answered.

What do the scores mean?

Ratings on the Likert scale are assigned points:

Likert scale rating	Score
1	0
2	1
3	2
4	3
5	4

The SHS score is calculated by summing the scores for all questions, yielding a total score from 0-100 points. Scores more than 35 indicate SHS and higher scores represent more severe SHS.^{3,10}

Why are these results important?

- The 25 questions related to SHS are categorised into five subscales as follows:³

Subscales	No. of questions	Corresponding questions
Fatigue	9	1 - 6 and 8 - 10
Cardiovascular system	3	11 - 13
Digestive tract	3	14 - 16
Immune system	3	7, 17, and 25
Mental status	7	18 - 24

- Individuals with higher SHS scores may be at higher risk of cardiovascular disease than those with lower scores.²
 - o High-score individuals have been shown to have significantly higher systolic and diastolic blood pressure, plasma glucose, total cholesterol, triglyceride levels, and body mass index (BMI) - indicating a positive correlation between SHS and these cardiovascular risk factors.²
- High SHS score has also been associated with higher level of serum cortisol, suggesting stress as an important factor related to SHS.² In addition, individuals with higher SHS score reported current smoking and less physical activity.
- Assessing SHS will enable primary care providers to distinguish among abnormal conditions, thereby allowing appropriate and timely interventions to help move individuals from SHS to health, prevent overt disease and avoid progression to chronic disease.^{2,6,9}

How has the questionnaire been used?

The questionnaire has been incorporated in several studies to identify the association between chronic disease and the severity or prevalence of SHS. The findings of these studies support the potential use of the questionnaire as a tool for early detection and prevention as well as a treatment guide for chronic diseases.

- 1) Correlation between severity of SHS and psychosocial stress.¹¹
 - Psychosocial stress including "demands at work", "interpersonal relations and leadership" and "insecurity at work" were found to be predictive of the severity of SHS, contributing to the development of chronic diseases.
- 2) Association between prevalence of SHS and incidence of chronic diseases.¹²
 - The prevalence of SHS was found to be associated with risk factors for chronic disease such as socio-economic status, marital status, highest education completed, physical activity, salt intake, blood pressure and triglyceride levels.
- 3) Screening of at-risk individuals for type 2 diabetes mellitus (T2DM).¹³
 - The severity of SHS correlated with risk factors for T2DM (i.e., sedentary lifestyle and elevated systolic and diastolic blood pressure). These findings were then translated into a risk assessment tool for T2DM.
- 4) Association between prevalence of SHS and cardiovascular risk factors.¹⁴
 - The scores of ideal cardiovascular health metrics (smoked or quit smoking, physical activity, adequate dietary intake and control of blood pressure) were found to be associated with a lower prevalence of SHS. This allows identification of cardiovascular risk factors that may lead to the development of cardiovascular disease.

REFERENCES 1. Wang W, et al. *EMPA J* 2014;5:4. 2. Wang W and Yan Y. *Clin Transl Med* 2012;1:28. 3. Yan YX, et al. *J Epidemiol* 2009;19:333-341. 4. Hilderink PH, et al. *Ageing Res Rev* 2013;12:151-156. 5. Henningsen P, et al. *Lancet* 2007;369:946-955. 6. Chen J, et al. *Int J Environ Res Public Health* 2017;14:240. 7. Zhang Y and Shao J. *GJPH* 2015;2:21-26. 8. World Health Organization. Healthy living: What is a healthy lifestyle? Available at: <https://apps.who.int/iris/handle/10665/108180>. Accessed March 2019. 9. Bi J, et al. *BMJ Open* 2014;4:e005156. 10. Kupaev V, et al. *EPMA J* 2016;7:19. 11. Yan YX, et al. *Stress* 2015;18:29-34. 12. Wang Y, et al. *J Transl Med* 2016;14:291. 13. Adua E, et al. *EMPA J* 2017;8:345-355. 14. Wang Y, et al. *Sci Rep* 2017;7:14975.

SUBOPTIMAL HEALTH STATUS QUESTIONNAIRE (SHSQ-25)

This questionnaire facilitates your healthcare provider to assess suboptimal health status (SHS) related to specific health complaints you may have in the preceding three months. All questions carry weightage. Please answer all questions by marking the appropriate box with an 'x'.

In the preceding 3 months, how often was it that you (your)...	1	2	3	4	5	Score
	never or almost never	occasionally	often	very often	always	(to be completed by HCPs)
1. were exhausted without greatly increasing your physical activity?						
2. experienced fatigue that could not be substantially alleviated by rest?						
3. were lethargic when working?						
4. suffered from headaches?						
5. suffered from dizziness?						
6. eyes ached or were tired?						
7. suffered from a sore throat?						
8. muscles or joints felt stiff?						
9. have pain in your shoulder/neck/waist?						
10. have a heavy feeling in your legs when walking?						
11. felt out of breath while sitting still?						
12. suffered from chest congestion?						
13. were bothered by heart palpitations?						
14. appetite was poor?						
15. suffered from heartburn?						
16. suffered from nausea?						
17. could not tolerate cold environments?						
18. had difficulty falling asleep?						
19. had trouble with waking up during night? i.e., kept waking up at night						
20. had trouble with your short-term memory?						
21. could not respond quickly?						
22. had difficulty concentrating?						
23. were distracted for no reason?						
24. felt nervous or jittery?						
25. caught a cold in the past 3 months?						
TOTAL						