

## **INSTRUCTION MANUAL**

The DAS measures the core domains of illness awareness in type II diabetes mellitus (T2DM), including general illness awareness, accurate symptom attribution, awareness of need for treatment, and awareness of negative consequences.

DAS is the first validated, T2DM-specific instrument that reliably and comprehensively measures subjective T2DM awareness. Item development was guided by existing theoretical models and previously validated scales of illness awareness in other conditions such as neuropsychiatric disorders. DAS demonstrated good convergent and discriminant validity, internal consistency, and one-month test-retest reliability. The 8-item scale can be completed in less than 2 minutes. Each scale item consists of a 10-point Likert scale to capture small differences in awareness. DAS can be used clinically and for research, including epidemiological studies and prospective treatment trials to investigate the extent to which subjective T2DM awareness contributes to treatment adherence and clinical outcomes; or neuroimaging and neurophysiological studies to identify the neural correlates of T2DM awareness.

The DAS is available for download at [www.illnessawarenessscales.com](http://www.illnessawarenessscales.com). Please see legal terms of use.

Below you will find instructions on how to use and score DAS.

Prior to administering DAS, the participant or the clinician is to enter data on the most recent weight and height, calculated BMI, blood pressure, fasting glucose, and HbA1c level on the top of page 1.

The scale consists of the following:

- 1) ASSESSMENT OF SYMPTOM ATTRIBUTION (Page 1)**
- 2) ASSESSMENT OF GENERAL ILLNESS AWARENESS, AWARENESS OF NEED FOR TREATMENT, AND AWARENESS OF NEGATIVE CONSEQUENCES (Page 2)**
- 3) SCORING SHEET (Page 3)**

The participant should read all content of the DAS in order to accurately report his/her understanding of his/her illness, symptoms, need for treatment and negative consequences of the illness.

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### **ASSESSMENT OF SYMPTOM ATTRIBUTION (Page 1)**

The ASSESSMENT OF SYMPTOM ATTRIBUTION (page 1) consists of an introductory statement indicating that the participant should report on his/her own beliefs about his/her health-related experiences and NOT on what others may wish him/her to believe.

We are interested in your own beliefs about your health. We are NOT interested in what others believe or may wish you to believe.

Indicate if you have any of the following health related experiences by reading the questions and marking  either Yes or No.

Following the introductory statement, the participant is to report on current health-related symptoms in a categorical fashion, i.e. by marking 'Yes' or 'No' beside the listed symptoms. The aim is for the participant to indicate *any* health-related symptoms he/she has.

If the participant reported 'No' to all of the listed symptoms, he/she is instructed to proceed to the next page.

If the participant said 'Yes' to any of the listed symptoms, he/she is instructed to indicate the extent to which he/she agrees or disagrees at the present moment with the

proceeding statement by circling the appropriate number, keeping in mind his/her health-related experience.

	Yes	No
A) Are you regularly thirsty? Do you drink excessive amounts of water?	<input type="checkbox"/>	<input type="checkbox"/>
B) Do you urinate too frequently? Or do you have excessive amounts of urine?	<input type="checkbox"/>	<input type="checkbox"/>
C) Do you regularly wake up during the night to urinate?	<input type="checkbox"/>	<input type="checkbox"/>
D) Do you have blurred vision?	<input type="checkbox"/>	<input type="checkbox"/>
E) Have you lost a lot of weight?	<input type="checkbox"/>	<input type="checkbox"/>
F) Do you regularly feel fatigued?	<input type="checkbox"/>	<input type="checkbox"/>
G) Do you have numbness, tingling, burning or loss of sensation in your feet or hands?	<input type="checkbox"/>	<input type="checkbox"/>
H) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>

- If 'NO' to ALL of the above, please go to the next page.
- If 'YES' to any of the above, indicate the extent to which you agree or disagree at the present moment with each of the following statements by circling the appropriate number, keeping in mind your health related experiences.

Item 1 specifically assess the participant's *Symptom Attribution*, i.e. the degree to which the participant is able or unable at the present moment to attribute his/her health-related symptoms (current or past) to T2DM.

In some cases, a participant may not report any health-related symptoms, which may leave the participant unable to rate item 1 for the ASSESSMENT OF SYMPTOM ATTRIBUTION (page 1). If this is the case, the participant should leave item 1 unrated as though it were 'Not applicable', which will allow for proper scoring of DAS (See SCORING SHEET).

**ASSESSMENT OF GENERAL ILLNESS AWARENESS, AWARENESS OF NEED FOR TREATMENT, AND AWARENESS OF NEGATIVE CONSEQUENCES (Page 2)**

The ASSESSMENT OF GENERAL ILLNESS AWARENESS, AWARENESS OF NEED FOR TREATMENT, AND AWARENESS OF NEGATIVE CONSEQUENCES (Page 2) consists of an introductory statement indicating that the participant should indicate the extent to which he/she agrees or disagrees at the present moment with the statements from item 2 to item 8.

**Please indicate the extent to which you agree or disagree at the present moment with each of the following statements by circling the appropriate number.**

Item 2, item 4, and item 7 specifically assesses the participant's *General Illness Awareness*, i.e. the participant's awareness that he/she has T2DM. For items 2 and 7, please see scoring sheet for applicability.

Item 3, item 5 and item 8 specifically assess the participant's *Awareness of Need for Treatment*, i.e. the participant's awareness of the need for lifestyle modifications (physical activity and dietary changes) or treatment. For item 5, please see scoring sheet for applicability.

Item 6 specifically assesses the participant's *Awareness of Negative Consequences* attributable to the T2DM, including e.g. heart disease, heart attack, stroke, near stroke, kidney disease, vision loss, numbness/tingling/loss of sensation in the hand and feet, etc.).

**SCORING SHEET (Page 3)**

The SCORING SHEET (Page 3) allows for the proper scoring of the DAS' Awareness Categories and Total Score. Step-by-step instructions are provided below.

- 1) Calculate each Awareness Category score by copying the rating from each item of the ASSESSMENT OF SYMPTOM ATTRIBUTION (Page 1), ASSESSMENT OF GENERAL ILLNESS AWARENESS, AWARENESS OF NEED FOR TREATMENT, AND AWARENESS OF NEGATIVE CONSEQUENCES (Page 2) to the corresponding blank space on the SCORING SHEET (Page 3), e.g. if the rating for Item 1 is '8', and Item 2 is '2', then '8' and '2' should be respectively copied to the Q1 and Q2 of the SCORING SHEET (Page 3).

\*Note that the score for each Awareness Category should be left blank if item 1 was not rated.

\*Consider indicating as not applicable if for items 4 and 7 the individual's blood sugar/glucose level is deemed to be well-controlled or for item 5 if the individual is currently maintaining a healthy lifestyle.

Awareness Category	Calculation	Score <sup>1</sup>
Illness Awareness	$Q2\_ + (10 - Q4\_*) + Q7\_*$ $\div \text{total \# of responses}\_$	
Symptom Attribution	<p style="text-align: center;">Q1 <u>8</u></p> <p style="text-align: center;">Exclude if indicated as N/A</p>	

- 2) The calculations in the Calculation column of the SCORING SHEET (page 3) should be performed to generate the Awareness Category scores in the Score column.
- 3) Once calculated, the Awareness Category Scores should be summed to determine the Subtotal.
- 4) The DAS Average Total Score is calculated by dividing the Subtotal by the number of Awareness Categories for which a score could be determined. The DAS Average Total Score should be divided by four if all categories were measured. The DAS Average Total Score should be divided by three if no score was reported for Symptom Attribution.