

Supplementary Table 2. Detailed information on the study measures

Measure	Description
Mental health-related measures	
Patient Health Questionnaire-9 (PHQ-9)	The PHQ-9 is a 9-item self-report scale developed to assess the presence and severity of depression within the past 2 weeks. It was adapted for use with Korean participants [1]. Respondents rate how often they have been bothered by each problem on a 4-point Likert scale ranging from 0 to 3. The total score ranges from 0 to 27, with higher scores indicating more severe depressive symptoms, and a cutoff score of 10 is used.
Generalized Anxiety Disorder-7 (GAD-7)	The GAD-7 is a brief self-report scale that assesses generalized anxiety disorder, comprising 7 items [2]. Respondents rate the frequency of experiencing symptoms related to generalized anxiety disorder over the past 2 weeks using a 4-point Likert scale ranging from 0 to 3. Total scores range from 0 to 21, with higher scores indicating more severe anxiety. In this study, we used the Korean version of the GAD-7, accessible on the Patient Health Questionnaire website [3].
Korean version of the Perceived Stress Scale (K-PSS)	The Perceived Stress Scale (PSS), originally developed in 1983 [4], was translated into Korean in 2010 and 2012 [5,6]. The K-PSS consists of 10 items, and respondents rate their responses on a 5-point Likert scale ranging from 0 to 4. The total score ranges from 0 to 40, with higher scores indicating higher perceived stress levels.
Brief Diabetes Distress Screening Instrument (DDS-2)	The DDS-2 is a brief version of the Diabetes Distress Scale, developed in 2008 [7], and was translated into Korean in 2020 [8]. It consists of 2 items, and each item assesses the emotional burden of diabetes and the stress of diabetes management and treatment on a 6-point Likert scale ranging from 1 to 6. The total score ranges from 2 to 12, with higher scores indicating higher levels of diabetes-related stress.
European Quality of Life-5 Dimensions 3 Level (EQ-5D-3L)	The EQ-5D-3L is a tool developed by the Euro Quality of Life Group to assess health-related quality of life. It comprises a descriptive system with five domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Respondents rate their current health state within each domain using three levels. The evaluative system included the EQ-5D-3L index. We employed the EQ-5D-3L index to calculate utility values for health states and evaluate the overall quality of life [9].
Diabetes self-management measures	
Diabetes Self-Efficacy Scale (DSES)	The DSES, originally developed by the Stanford Patient Education Research Center in 2009, was used in its Korean version translated by Young Sun Yeom in her thesis in 2010. It comprises 8 items, and respondents rate their level of confidence in successfully performing self-care behaviors on a 10-point Likert scale ranging from 1 to 10. Higher scores indicate a higher level of self-efficacy in managing diabetes.
Diabetes Care Profile-Social Support Scale (DCP-SSS)	The Diabetes Care Profile (DCP), developed in 1996 [10], measures psychosocial factors and diabetes treatment. For this study, only the instrumental and emotional support subscales were utilized, and they were translated into Korean in 2007 [11]. The scale was modified to fit the study's purpose, resulting in a total of 9 items, excluding 3 items not relevant to the study. Each item was answered on a 5-point Likert scale from 1 to 5, with higher scores indicating higher perceived social support.
Diabetes Self-Management Behaviors for Older Koreans (DSMB-O)	The DSMB-O was developed in 2016 [12] and is based on the self-management standards proposed by the American Association of Diabetes Educators, considering the characteristics of older adults with type 2 diabetes in Korea. The scale consists of a total of 14 questions, with 9 questions answered on a 4-point Likert scale from 0 to 3, and 5 dichotomous questions. The total score ranges from 0 to 30, with higher scores indicating higher levels of diabetes self-care behaviors.
Laboratory assessments	
Complete blood count	Measures white blood cell count, hemoglobin levels, and platelet count through venous blood sampling.
Fasting plasma glucose	Measures glucose levels after an 8-hour fasting period through venous blood sampling.
Glycated hemoglobin (HbA1c)	Measures average blood glucose levels over the past 2–3 months through venous blood sampling.
Lipid profile	Measures total cholesterol, triglycerides, high-density lipoprotein cholesterol (HDL-C), and low-density lipoprotein cholesterol (LDL-C) after an 8-hour fasting period through venous blood sampling.
Liver function test	Measures aspartate aminotransferase (AST) and alanine amino-transferase (ALT) through venous blood sampling.
Kidney function test	Measures serum creatinine and includes a urinalysis through venous blood sampling and random urine sampling.