Diabetes Mellitus symptoms related to physical competence: Do they predict dynamic balance?

Study Design and Sample Size

This cross-sectional study was conducted at … University, Faculty of Physiotherapy and Rehabilitation. We conducted a post hoc power analysis using the G-Power 3.1.9.2 program (Heinrich-Heine-Universitat, Dusseldorf, Germany). Fifty-eight participants were included in the study, and the effect size based on achieved was $f^2=0.32$ $[f^2=R^2/(1- R^2)]$. Assuming that the type I error (α) was 0.05, the program calculated that the power was 90%.

Ethical Approval

The …. University Non-Interventional Clinical Research Ethics Committee approved the study (Application Number: 60116787-020/71477; 19.10.2018). The registration number of this study on ClinicalTrial.gov is …. Each phase of the study conducted according to the prenciples of the Declaration of Helsinki. All participants were informed about the study before participation, and those who agreed to participate provided written informed consent.

Participants

The study population consisted of patients diagnosed with DM who applied to the … University, Department of Internal Medicine Endocrinology and Metabolism Polyclinic. Participants are eligible if they were between 25 and 75 years old and had a Mini Mental Test (MMT) score ≥ 24. The exclusion criteria included the presence of comorbid conditions that could affect balance, such as lower extremity injuries, musculoskeletal surgery, diabetic neuropathy, orthopedic, neurological and cardiovascular diseases, and hearing or vision problems. The evaluations were conducted on 58 of the 148 patients with DM (Fig 1).

Outcome Measures

The patients who met the inclusion criteria were questioned about their sociodemographic and clinical characteristics (e.g. DM duration and medication use). The primary outcome of the study was dynamic balance. The independent variables included body composition, physical activity level, walking distance, fatigue-related perceived exertion level, and urinary incontinence. The Four-Step Square Test (FSST), Body Mass Index (BMI), International Physical Activity Questionnaire–Long Form (IPAQ-LF), 6-Minute Walking Test (6MWT), Modified Borg Scale (MBS), and International Urinary Incontinence Consultation Questionnaire-Short Form (ICIQ-UI SF) were used.

Statistical Analysis

The SPSS 25.0 [IBM SPSS Statistics 25 Software (Armonk, NY: IBM Corp.)] package program will be used to analyze all results. The Kolmogorov-Smirnov test will be used to determine whether the data were normally distributed or not. Continuous data will be presented as mean±standard deviation, whereas categorical data will be presented as percentages. Multiple regression analysis will be used to evaluate the effects of dependent variables on dynamic balance. Statistical significance will be set at $p \leq 0.05$ for all analyses.