

## CROSS-CULTURAL ADAPTATION AND VALIDATION OF THE REVISED BRIEF DIABETES KNOWLEDGE TEST (DKT2) IN INDIVIDUAL WITH TYPE 2 DIABETES MELLITUS AND THEIR CAREGIVERS.

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**Background:** The DKT2 scale is a valid and reliable scale to assess overall knowledge of diabetes, considering its role in leading the performance of appropriate self-care behaviours in patients with Type 2 Diabetes Mellitus (T2DM). The DKT2 contains two “subscales”: the “general knowledge” subscale of the test has 14 items and the “insulin-use specific knowledge” with 9 items that is appropriate for individuals using insulin. Each subscale can be scored and used independently. However, it is not available in the Italian version due to it was not yet translated and validated in the Italian contest.

**Aim:** To develop an Italian version of DKT2, providing a cultural and linguistic validation supported by psychometrics and hypotheses testing.

**Method:** This multi-phase multi-methods study is divided into three phases: (a) cultural-linguistic validation, with a translation and back-translation process, (b) Confirmatory Factor Analysis (CFA) considering the original scale’s structure (knowledge and insulin-specific knowledge) and (c) hypotheses testing comparing the scores of knowledge of people with higher educational level theorized as higher than scores of those with lower education (in both patients and caregivers), and theorizing a positive correlation between knowledge and self-care self-efficacy. The reliability was assessed by Cronbach's alpha and Kuder-Richardson Formula 20 (KR-20) of the overall scale.

**Result:** A total of 251 patients and 251 caregivers were enrolled. The mean age of patients was 72.3 years ( $\pm 9.7$  years), and 55% were male, while the mean age of caregivers was 62.9 years ( $\pm 12.6$  years), and only 29% were male. The CFA showed excellent goodness-of-fit after removal of “item 4” which was considered “outdated” considering its content, in both patients’ group ( $\chi^2_{(229)} = 234.991$ ,  $p = 0.379$ ;  $\chi^2/df = 1.02$ ; RMSEA = 0.010; 90% CI [0.000–0.028]; CFI = 0.989; TLI = 0.998; WRMR = 0.835) and caregivers’ group ( $\chi^2_{(208)} = 277.509$ ,  $p = 0.0009$ ;  $\chi^2/df = 1.332$ ; RMSEA = 0.036; 90% CI [0.024–0.047]; CFI = 0.901; TLI = 0.898; WRMR = 0.986). The mean percentage knowledge score on DKT2 of patients was 54.62%  $\pm$  19.23%, *versus* 58.93%  $\pm$  18.68% of caregivers’ knowledge. The tested hypotheses were confirmed to support the validity of the Italian version of the DKT2 in both groups. Patients with an educational level lower than high school graduate had significantly lower scores (51.09% *vs.* 65.22%;  $P < .01$ ), and there was a positive correlation between knowledge and self-care self-efficacy ( $P < .01$ ). Overlapping results were found in the caregivers’ group: educational level lower than high school graduate had significantly lower scores (57.14% *vs.* 64.29%;  $P < .01$ ), and there was a positive correlation between knowledge and self-care self-efficacy ( $P < .01$ ). Reliability was adequate as all Cronbach's alpha values in both groups and for both domains were higher than 0.65.

**Conclusion:** The Italian version of DKT2 shows evidence of reliability and validity, and it might be used by researchers, clinicians, and diabetes educators to assess a patient’s or a population’s overall knowledge of diabetes.