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Is stress related with poor glycaemic control in patients with diabetes mellitus type 2?

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Background and Aim: Substantial data support the theoretical importance of stress in T2DM, yet there is little direct evidence that stress plays a clinically significant role. Our aim is to determine self-reported stress levels among type 2 diabetes mellitus (T2DM) patients and its association with hemoglobin A1c (HbA1c) in family physicians' (FP) offices in Croatia.

Methods: A total of 449 FPs from all Croatian regions consecutively recruited up to 20-25 subjects of both sexes from 2008 to 2010, diagnosed at least 3 year prior to study entry, aged ≥ 40 years, scheduled for diabetes control check-ups. The recruitment period lasted for six months. Self-reported stress was measured using Perceived Stress Scale (PSS), supplemented with HbA1c measurement.

Results: The study included 10,285 patients with T2DM with mean (\pm SD) age of 65.7 (± 10.05) years (48.1% men). Mean HbA1c level was 7.57 (± 1.58)%. Majority of patients (7655 or 78.3%) reported medium level of stress, while 1432 (14.7%) and 687 (7.0%) reported low and high levels of stress, respectively. Cronbach's α reliability coefficient for the stress questionnaire was 0.82, with Guttman's split-half coefficient 0.85. Principal component analysis with the extraction criterion of eigenvalues > 1 revealed two principal components, together explaining 59% of the manifest items variance. Two components were defined by the positive or negative orientation of PSS items. Level of stress was significantly ($P < 0.001$) associated with increased HbA1c and high level of stress were significantly associated with increased HbA1c ($P < 0.05$).

Conclusions: In this study, medium to increased level of stress was significantly associated with the level of HbA1c. These results emphasize the importance of regular screening for stress in clinical setting. If patients' stress can be identified and helped, improvements in their overall diabetes control, as well as quality of life, are likely to follow.

Keywords: family physician, stress, type 2 diabetes