

# Evaluating Internal Medicine Patients? Comprehensibility of a Standardized Medication Plan

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**Background** A standardized medication plan (MP) was recently enacted into German Law. It has never been studied if patients with chronic diseases requiring polymedication understand the standardized MP and can transfer the given information into practice.

**Purpose** The aim of the study was to evaluate if patients with polymedication comprehend the German national MP and what variables are associated with better comprehension.

**Method** 140 patients who took at least five medicines regularly were prospectively included in a cross-sectional study: 40 general internal medicine (GIM) patients, 50 patients with the primary diagnosis chronic heart failure (CHF), and 50 with diabetes mellitus type 2 (DMT2). We performed a structured test-scenario studying the handling of a provided MP then evaluated the execution of the information on the MP by filling pill boxes and requested patients' opinion. An established weighted scoring system, the 'Evaluation Tool to test the handling of the Medication Plan' (ET-MP) for the filled pill boxes was applied. The corresponding ET-MP score (0-100%) was calculated in order to quantify the ability of the patients to handle the MP. In addition for CHF and DMT2 patients, signs of depression, cognitive function and self-care behavior in chronic heart failure were characterized using the PHQ-9, Mini-Cog, and G9-EHFScB-9 questionnaires, respectively.

**Findings** Only 37% (n=52) of the patients were able to handle the medication plan without difficulties (ET-MP score > 90%). The mean ET-MP score was  $78 \pm 56\%$  (GIM:  $86 \pm 19\%$ , CHF:  $78 \pm 23\%$  ( $p=.16$  vs. GIM), DMT2:  $68 \pm 30\%$  ( $p=.13$  vs. CHF;  $p=.006$  vs. GIM)). Understanding of the MP was better in patients aged < 70 years ( $83 \pm 22\%$ ) compared to  $\geq 70$  years ( $71 \pm 28\%$ ,  $p = .004$ ). Patients with more or equal than 10 years of education achieved higher ET-MP results ( $88 \pm 19\%$ ) than patients with < 10 years of education ( $67 \pm 27\%$ ,  $p < .0001$ ). Patients with signs of cognitive impairment exhibited significantly lower ET-MP scores ( $61 \pm 28\%$ ) than patients without cognitive impairment ( $80 \pm 24\%$ ,  $p < .0001$ ). There were no significant correlations of the ET-MP score with the number of daily medications, living situation, sex, the Charlson Comorbidity Index, the PHQ-9 Score, usage of a dosing aid or possession of a medication list.

**Conclusion** Many internal medicine patients with polymedication show problems using the standardized medication plan. Higher age, lower education and cognitive impairment identify patients that require additional assistance.