

The Diabetes Self-Management Questionnaire (DSMQ) can detect inadequate self-care behaviour and help identify patients at risk of a negative diabetes prognosis



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BACKGROUND & AIMS

Existing psychometric instruments to assess diabetes self-management often reveal weak or inconsistent associations with ‘hard data’ such as medical outcomes and HbA_{1c}. To fill this gap, the Diabetes Self-Management Questionnaire (DSMQ) was developed, focussing on self-care activities which directly impact medical diabetes outcomes. This study evaluates the questionnaire’s practical utility in detecting high-risk patients at a tertiary diabetes centre.

MATERIALS & METHODS

226 people with diabetes (PWD) (see Table 1) were assessed with the DSMQ and further questionnaires regarding diabetes acceptance (AADQ), coping with illness (FQCI), diabetes treatment satisfaction (DTSQ), diabetes distress (PAID), and depressive symptoms (CES-D); additional data – demographic variables, self-monitoring of blood glucose (SMBG), insulin injections, diabetologist visits, HbA_{1c} and blood lipids, as well as long-term complications – were gained from electronic patient records and interviews. People were then categorized by a median split of the DSMQ total score into groups performing ‘adequate’ (n = 107) versus ‘inadequate’ diabetes self-care (n = 119) according to the DSMQ (the median split yielded a cut-off score of ≈ 6 on the DSMQ scale ranging from 0 to 10). The groups were compared regarding relevant diabetes-related behaviours and outcomes using multivariate ANCOVA – presented data are mean scores/percentages, F statistics, and effect sizes (Cohen’s d).

RESULTS

- After adjusting for sex (female), age, BMI, diabetes type (1), diabetes duration, and type of treatment (insulin), PWD classified as realising ‘inadequate self-care’ compared to those with ‘adequate self-care’ performed significantly fewer SMBG (3.3 vs. 5.6 tests/day, $F = 24.7$, $d = 0.74$), consulted their diabetologist less often (1.9 vs. 2.6 visits/half year, $F = 6.6$, $d = 0.34$), had a higher HbA_{1c} value (9.5 vs. 8.2%, $F = 34.6$, $d = 0.87$), higher cholesterol (194 vs. 182 mg/dl, $F = 6.4$, $d = 0.35$), and showed a higher prevalence of diabetic retinopathy (28% vs. 14%, $F = 6.0$, $d = 0.35$) (see figures 1 to 3).
- Moreover, PWD classified as realising ‘inadequate self-care’ compared to those with ‘adequate self-care’ showed significantly stronger diabetes non-acceptance (31 vs. 22, $F = 90.5$, $d = 1.24$), less active coping with their diabetes (11 vs. 14, $F = 18.1$, $d = 0.82$), lower diabetes treatment satisfaction (20 vs. 24, $F = 21.3$, $d = 0.60$), higher diabetes distress (43 vs. 33, $F = 17.0$, $d = 0.85$), and more depressive symptoms (24 vs. 20, $F = 4.8$, $d = 0.36$) (see figure 4).

- There were no significant differences between the groups regarding frequencies of insulin injections, triglycerides values, or prevalences of neuropathy and nephropathy (see figures 1 to 3).

CONCLUSION

The DSMQ yields excellent distinction between PWD performing desirable versus insufficient diabetes self-care, thus enabling detection of people at high risk of a negative diabetes prognosis. The 16-item questionnaire is an efficient tool which may be used for screening and diagnostic purposes or clinical diabetes research.

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Table 1: Sample Characteristics

Variable	N = 226	T1DM (70%)	T2DM (30%)
Age (years)	43 ± 15	37 ± 14	55 ± 10
Gender (female)	55%	59%	45%
BMI (kg/m ²)	29 ± 7	26 ± 5	36 ± 8
Diabetes duration (years)	15 ± 10	15 ± 11	12 ± 7
With insulin treatment	92%	100%	74%
With long-term complications	40%	61%	30%
HbA _{1c} (% , mmol/mol)	8.9 ± 1.6, 74 ± 17	8.8 ± 1.7, 72 ± 18	9.2 ± 1.3, 77 ± 14

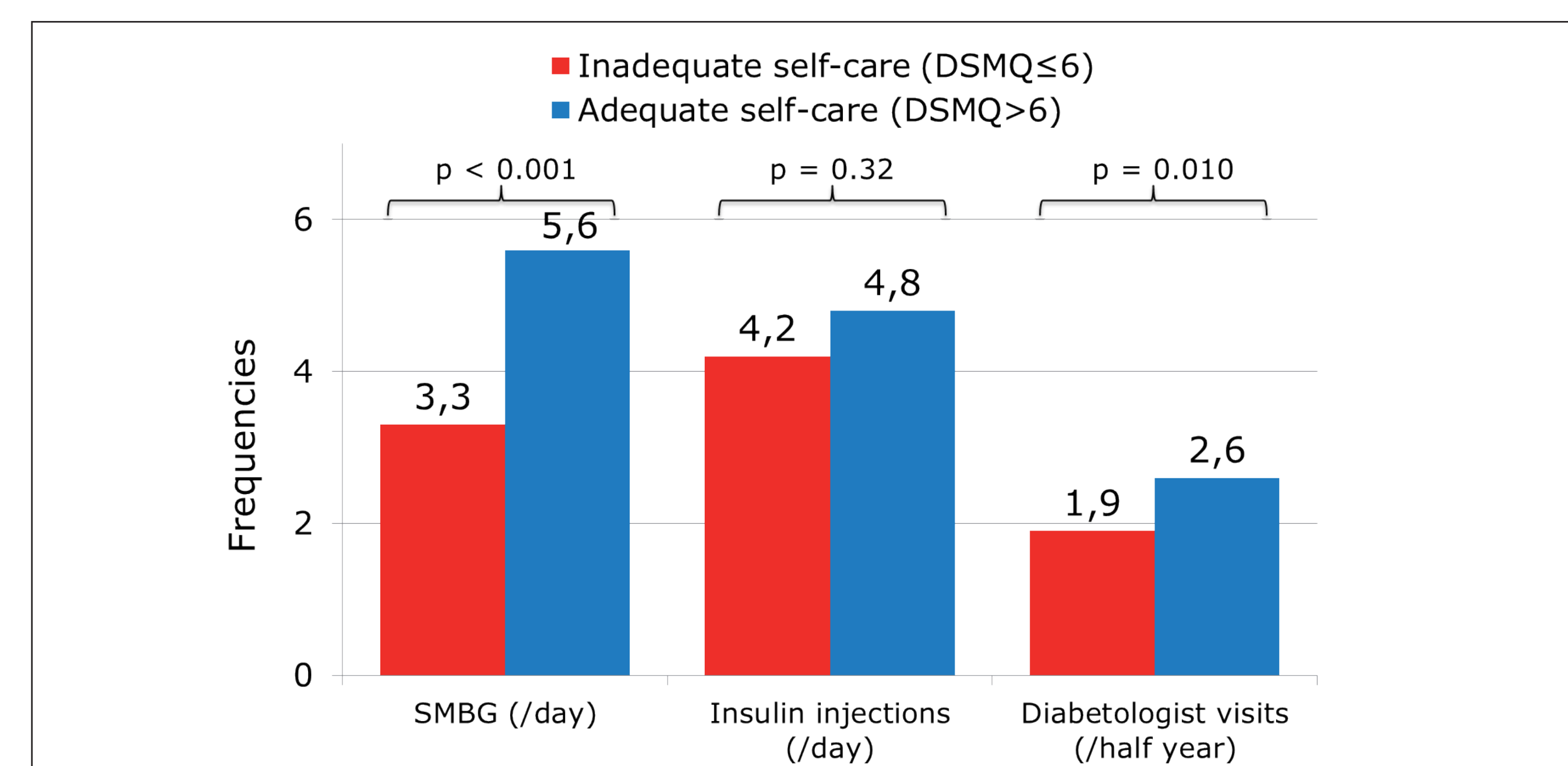


Figure 1: Diabetes self-care behaviour of PWD classified as performing ‘adequate’ versus ‘inadequate self-care’ according to the DSMQ

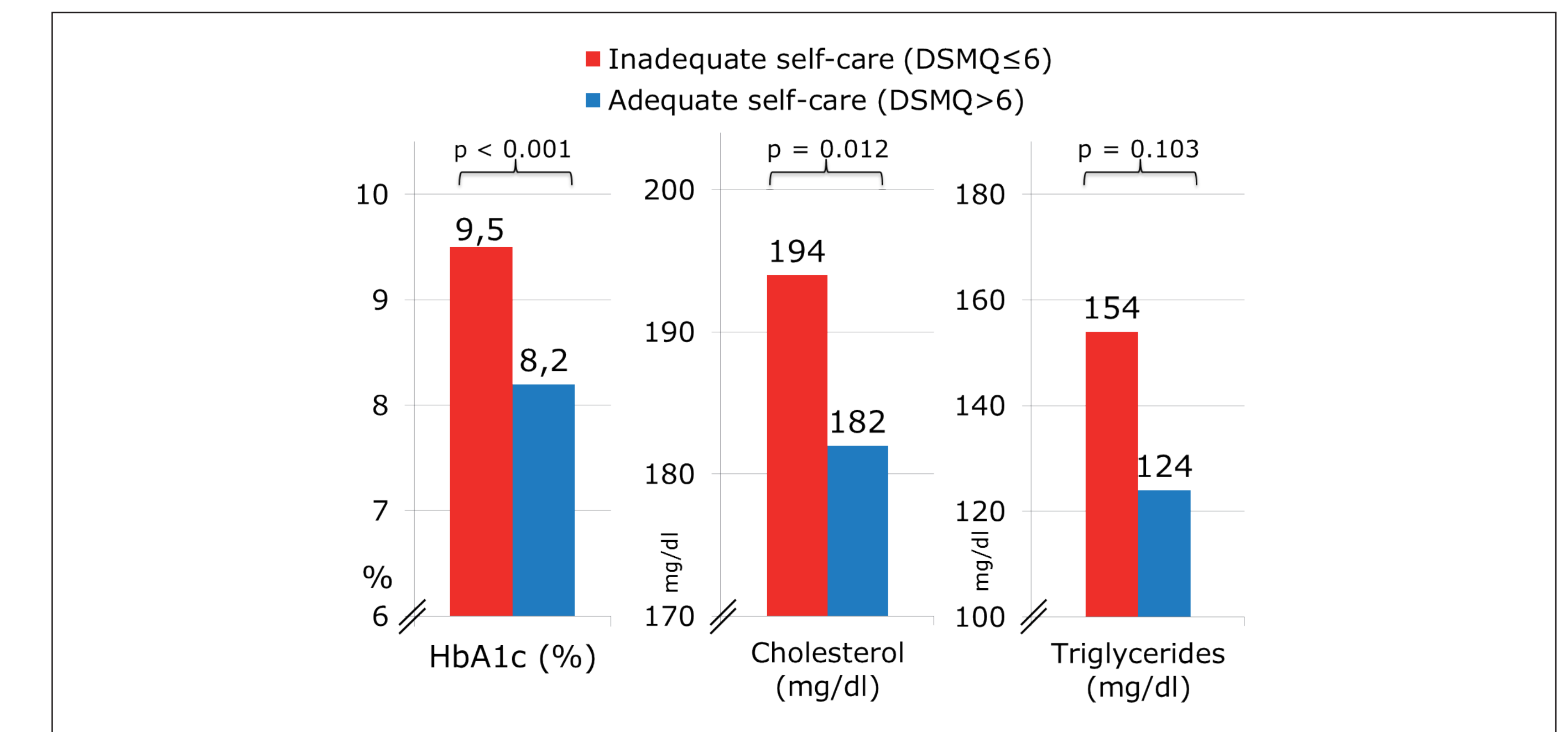


Figure 2: HbA_{1c} and blood lipids of PWD classified as performing ‘adequate’ versus ‘inadequate self-care’ according to the DSMQ

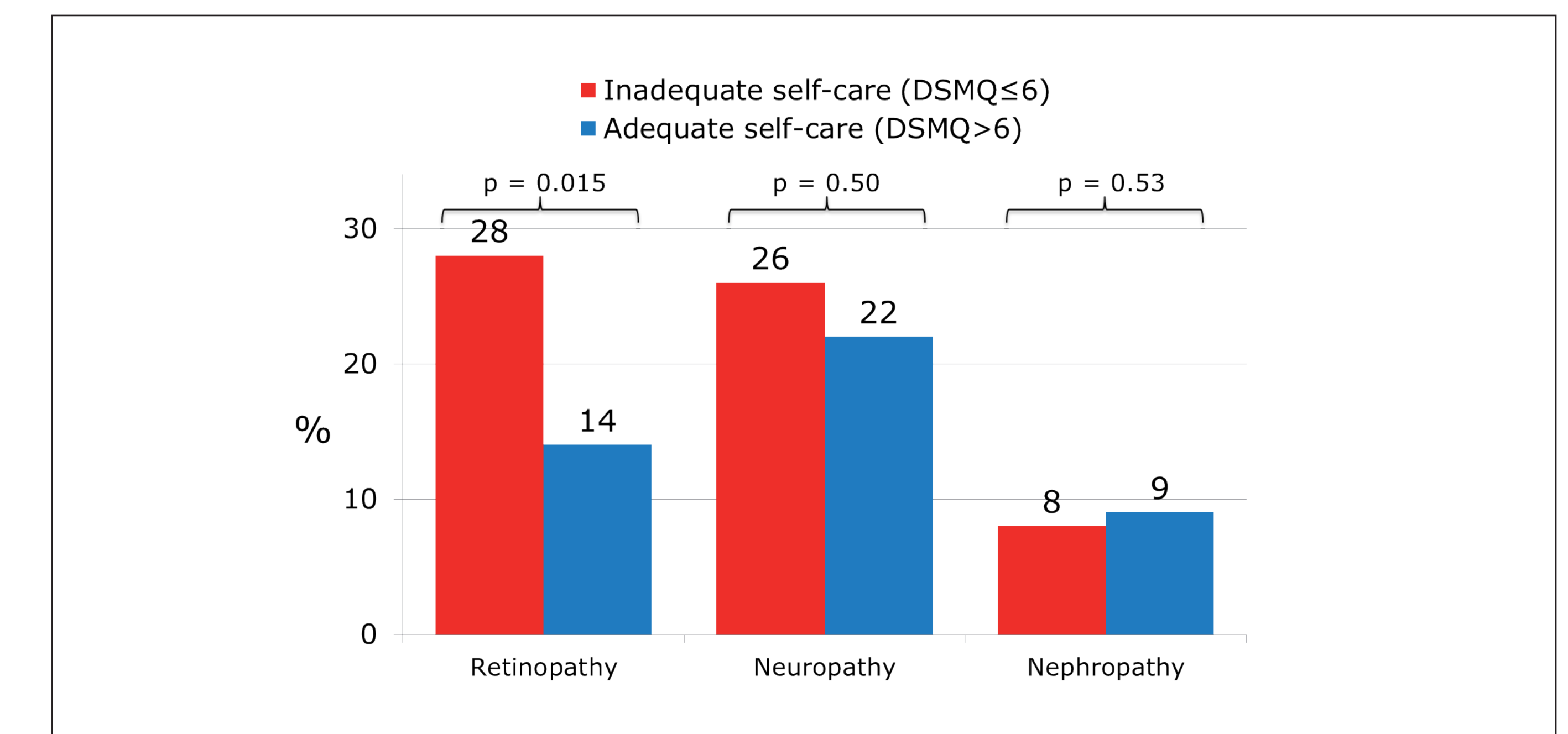


Figure 3: Prevalences of long-term complications in PWD classified as performing ‘adequate’ versus ‘inadequate self-care’ according to the DSMQ

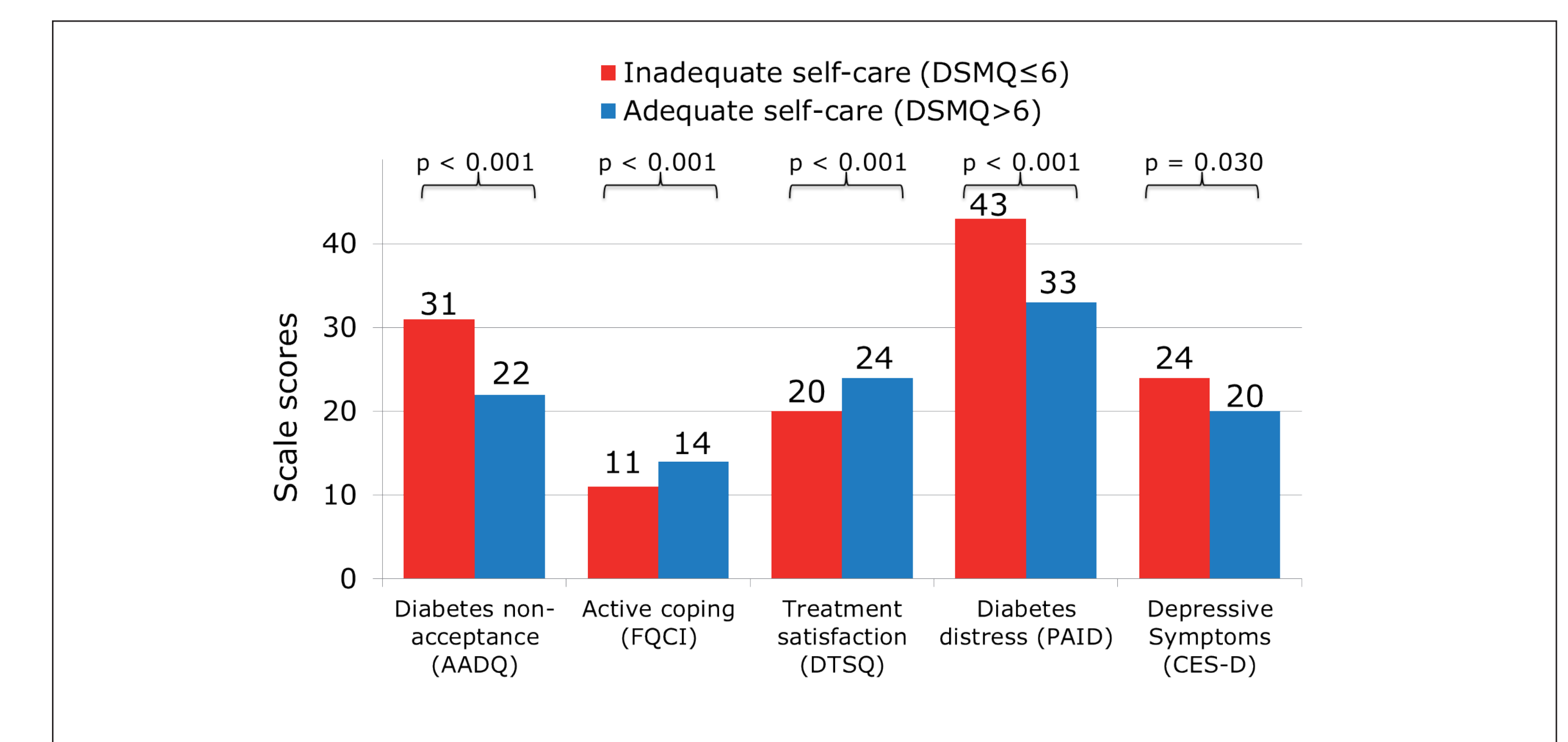


Figure 4: Psychological attributes of PWD classified as performing ‘adequate’ versus ‘inadequate self-care’ according to the DSMQ