Identification of diabetes self-management profiles in adults: a cluster analysis with selected self-reported outcomes

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Introduction

To date there is no personal diabetes self-management (DSM) profile identification based on the two DSM dimensions that are ubiquitous in the field literature: engagement in the diabetes care activities performance and psychological adjustment with the condition.

Objectives: To describe distinctive DSM profiles in a large community cohort of adults with diabetes with selected self-reported outcomes, and 2) to describe these DSM profiles according to patients' socio-demographic and clinical characteristics.

Method

We used selected DSM self-reported outcomes from the 2014 follow-up data of the community-based cohort of adults with diabetes CoDiab-VD (N= 316).

Diabetes care activities performance
DSM behaviors: Summary of diabetes self-care activities
healthy eating (4 items) α= 0.76;
physical activity (2 items) r= 0.51;
self-monitoring of blood glucose (SMBG, 2 items) r= 0.89;
foot care (4 items) α= 0.62

Self-efficacy: Diabetes Self-Efficacy questionnaire (8 items) α= 0.89
Empowerment: Empowerment Scale-Short Form (8 items) α= 0.86

Psychological adjustment
Diabetes distress: Problem Areas In Diabetes (5 items) α= 0.94
Quality of life (QOL): Audit of Diabetes-Dependent Quality of life (19 items)
α= 0.96

We conducted clustering analysis using Ward's method (agglomerative hierarchical procedure) and compared with k-means method (iterative partitioning procedure). We tested whether the clusters differed according to care delivery processes, socio-demographic and clinical characteristics.
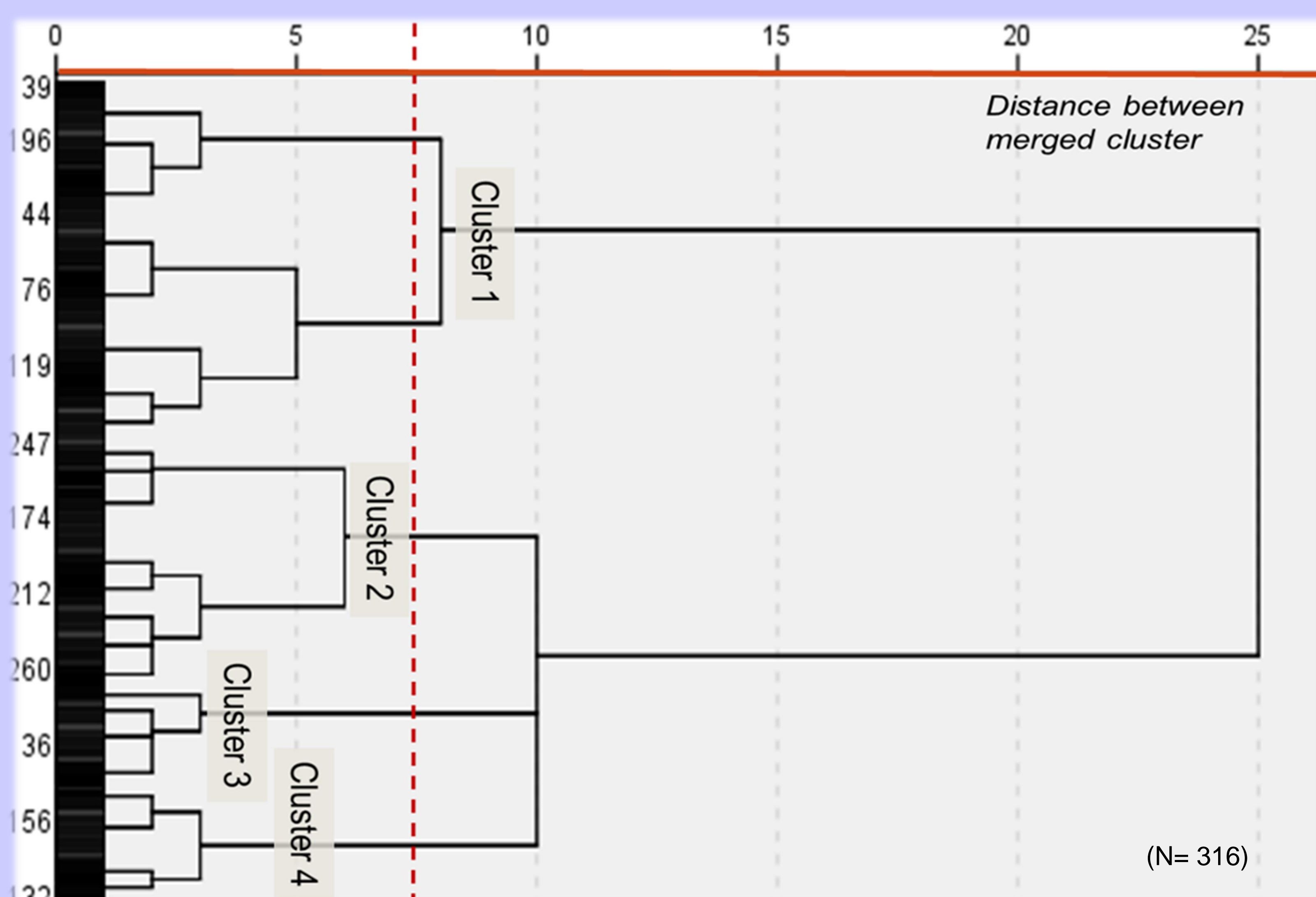
Results

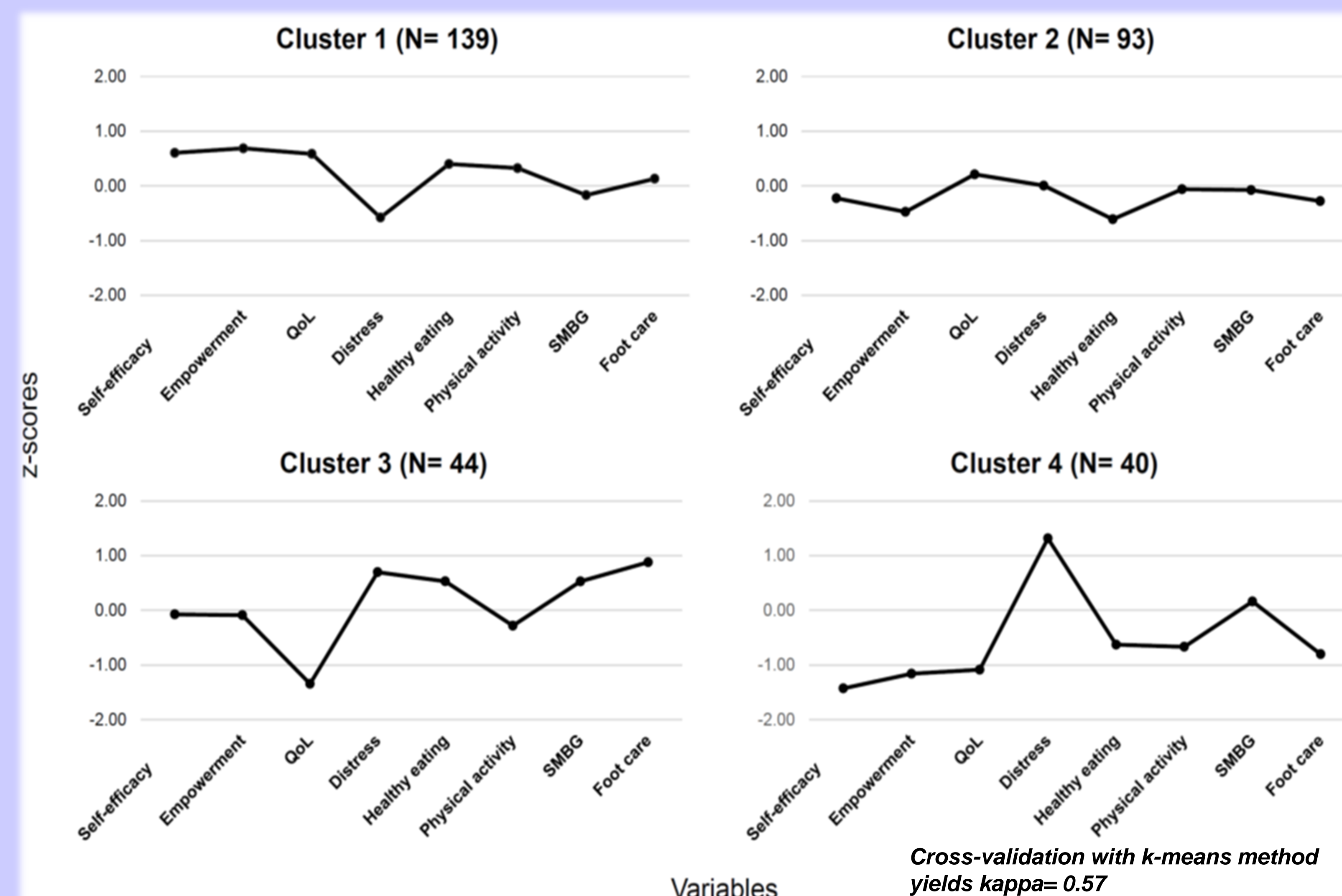Fig 1. Dendrogram schematic for clusters identification.

Fig 2. Standardized scores for each variable used for cluster identification using Ward method.
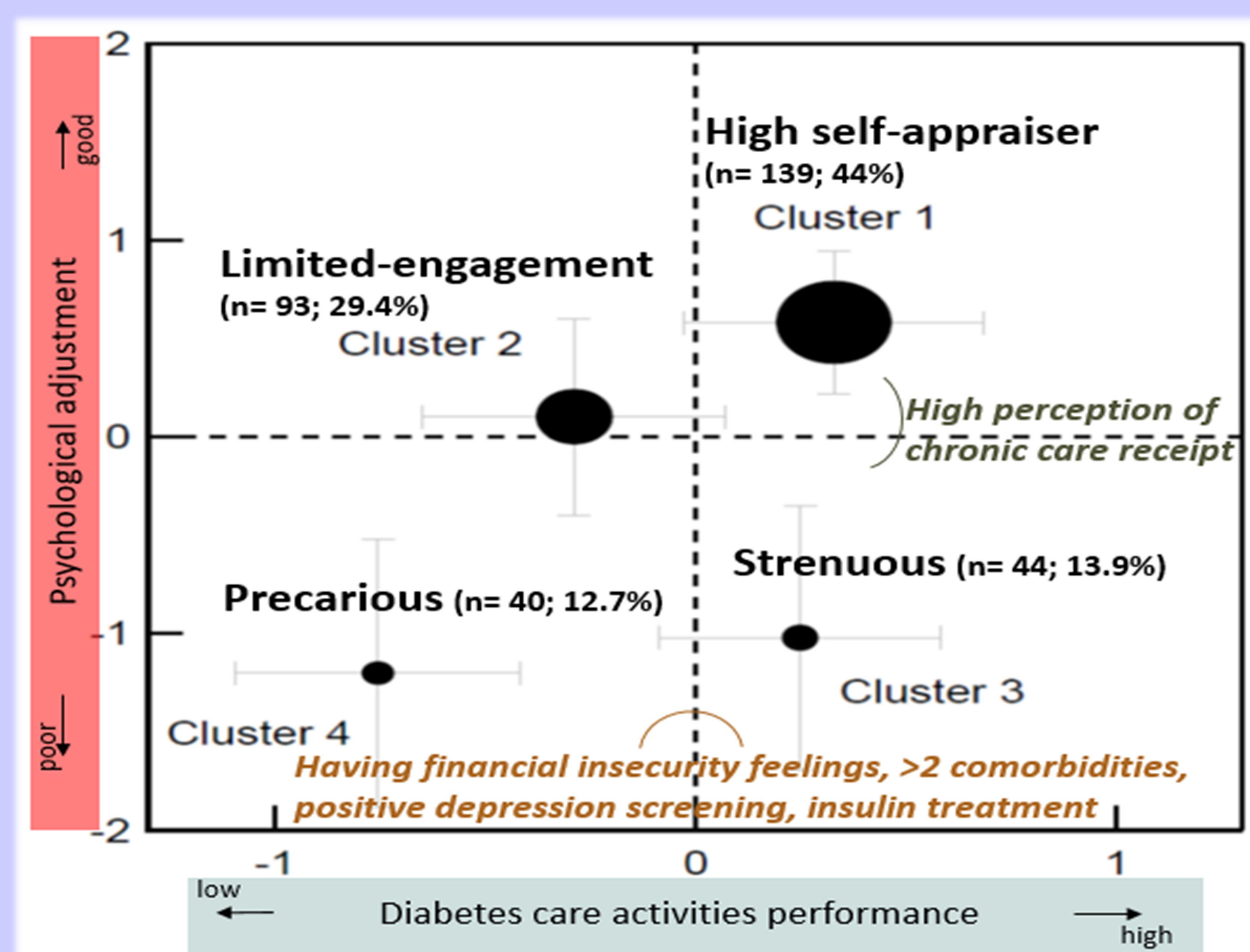
Cross-validation with k-means method yields kappa= 0.57

Fig 3. 2D Cartesian plot obtained by the averaged z-scores from variables used to identify clusters.

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Conclusions

The results could

➢ help health professionals gain a better understanding of the different realities of people living with diabetes;

➢ identify patients at risk of poor DSM-related outcomes;

➢ lead to the development of specific-profile interventions including:

• **High self-appraiser profile**: valuing and supporting long-term maintenance of the equilibrium between disease management and psychological adjustment;

• **Limited-engagement profile**: strengthening motivation for disease management;

• **Strenuous profile**: helping management of disease-related worries, and life-adjustment with the condition;

• **Precarious profile**: deploying vigorous actions from various perspectives (e.g., treatment of depression, addressing issues related to comorbidities, insulin treatment, negative effects of financial insecurity).

Note: Profile names should be replaced by generic labels (e.g., colors) to avoid generating any feeling of judgment in patients.