

Factor Analysis for Questionnaire Data

Method: Factor Analysis for Questionnaire Data

Method type: factor_analysis

Design: Two-factor principal-axis analysis of six ordered questionnaire items using Spearman correlations and varimax rotation.

Variables: famrel, freetime, goout, Dalc, Walc, health

Inference scope: Factor retention and loading interpretation are the primary tasks;

Bartlett's factorability test is reported only as an applicable diagnostic.

Formula: $R_s = \text{cor}(\text{ranks})$; $h_i^2 = \sum(\lambda_{ij}^2)$; varimax maximizes variance of squared loadings.

Source rows: 649

Calculated metrics:

factors: 2

overall_kmo: 0.568785903656374

bartlett_chi_square: 546.101915064159

bartlett_df: 15

bartlett_p_value: 9.75778301930474e-107

mean_communality: 0.380671202259718

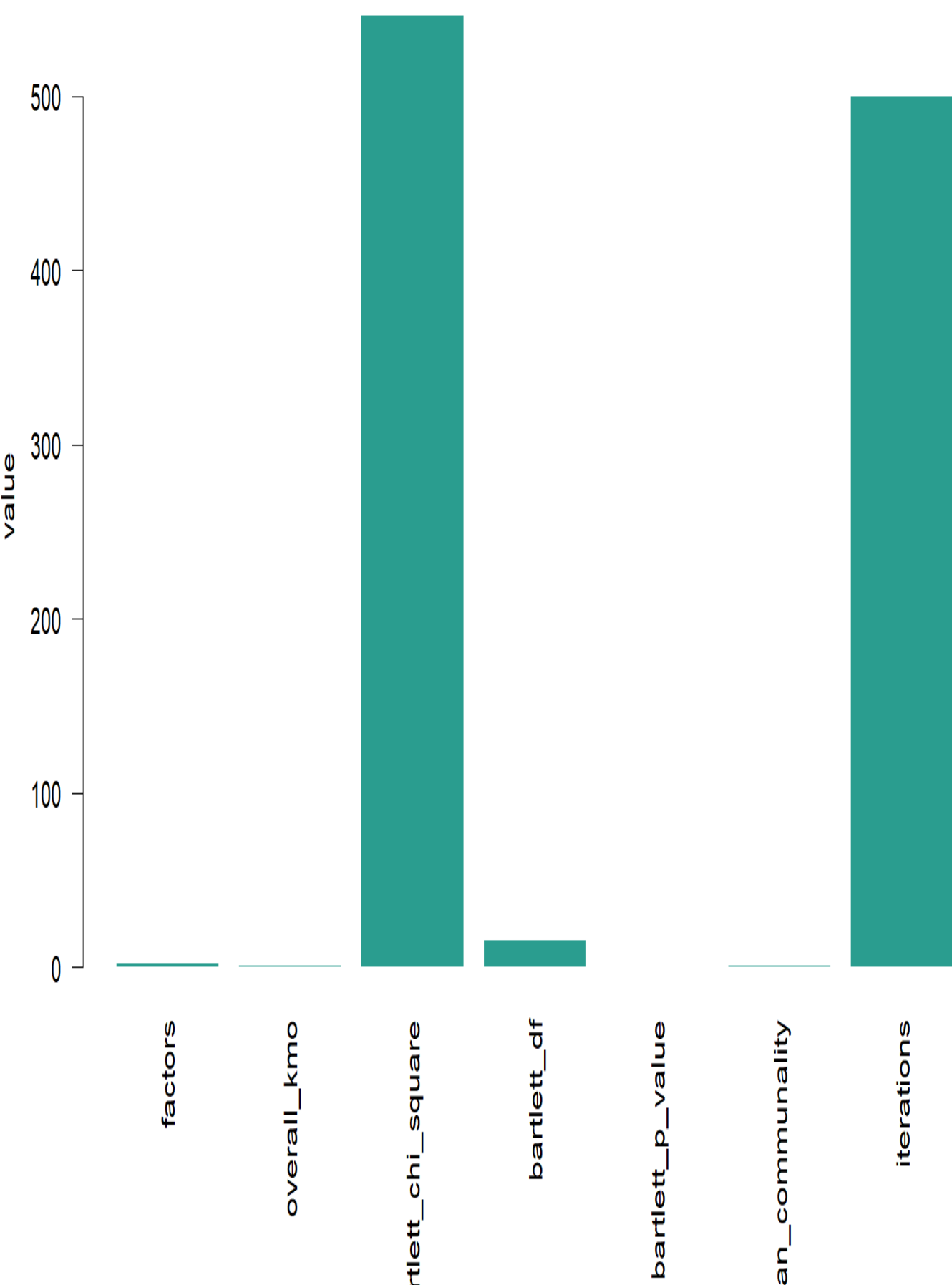
iterations: 500

Interpretation:

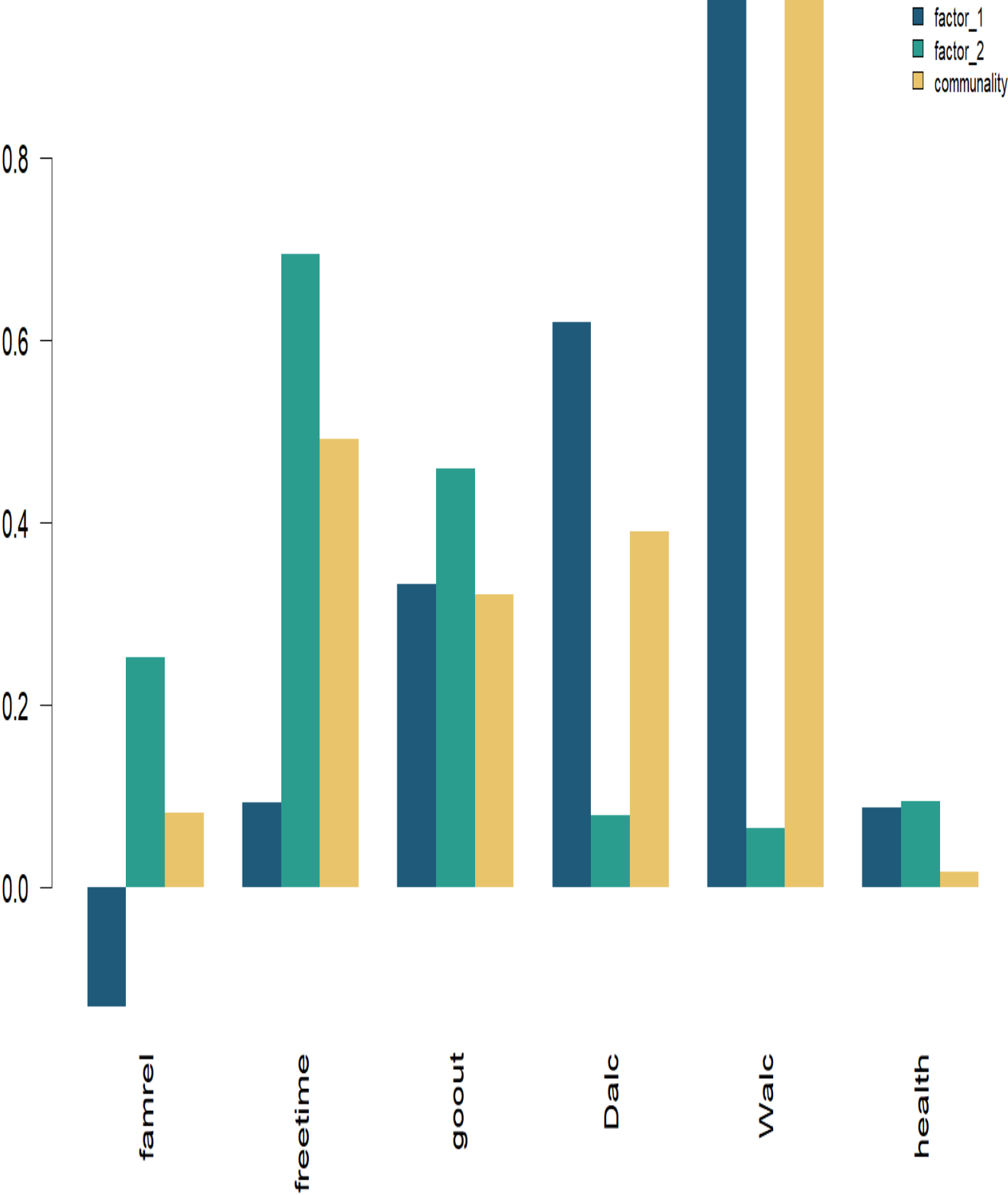
Principal-axis extraction uses rank correlations.

Overall KMO 0.568785903656374

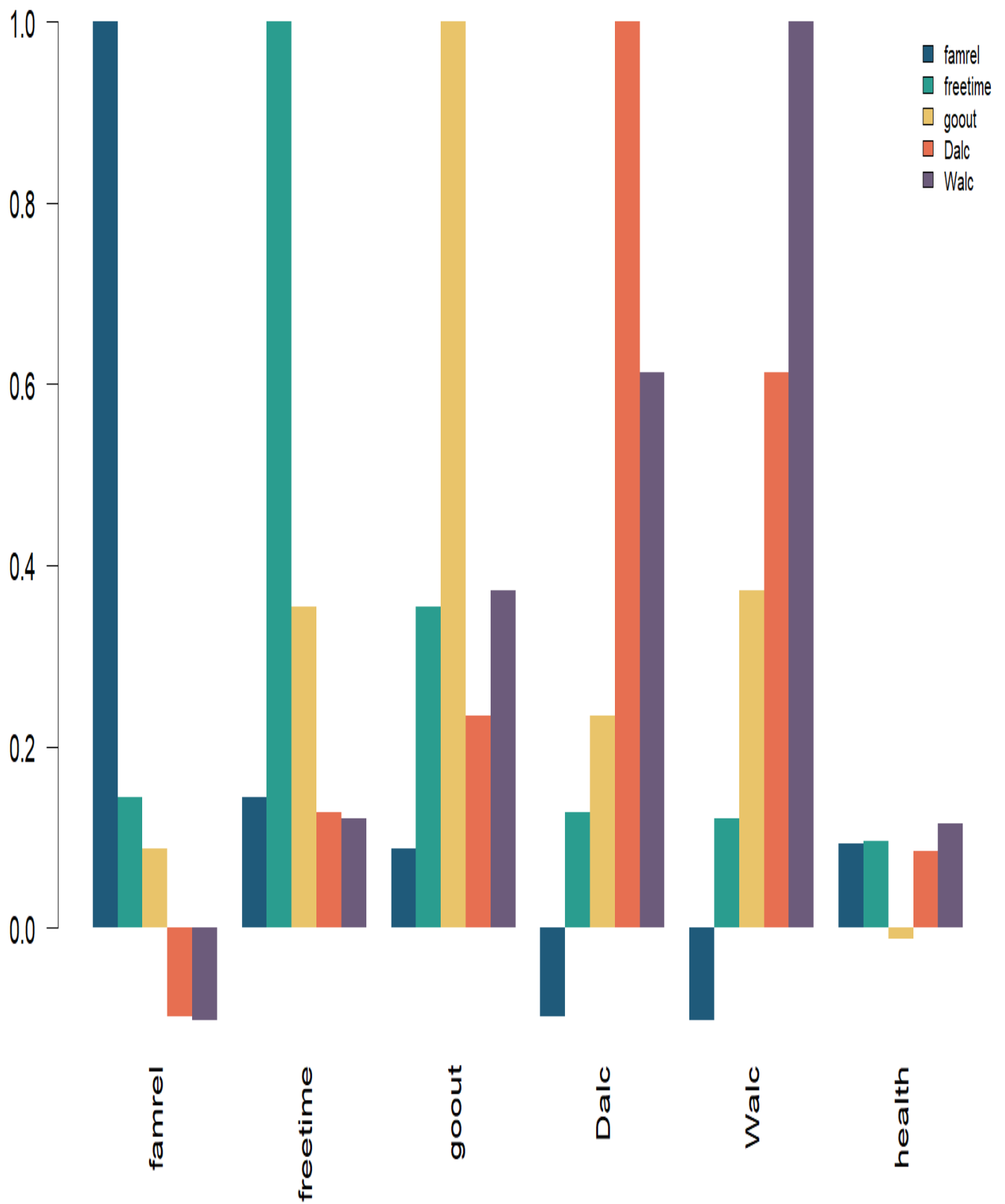
Factor Analysis for Questionnaire Data - primary metrics



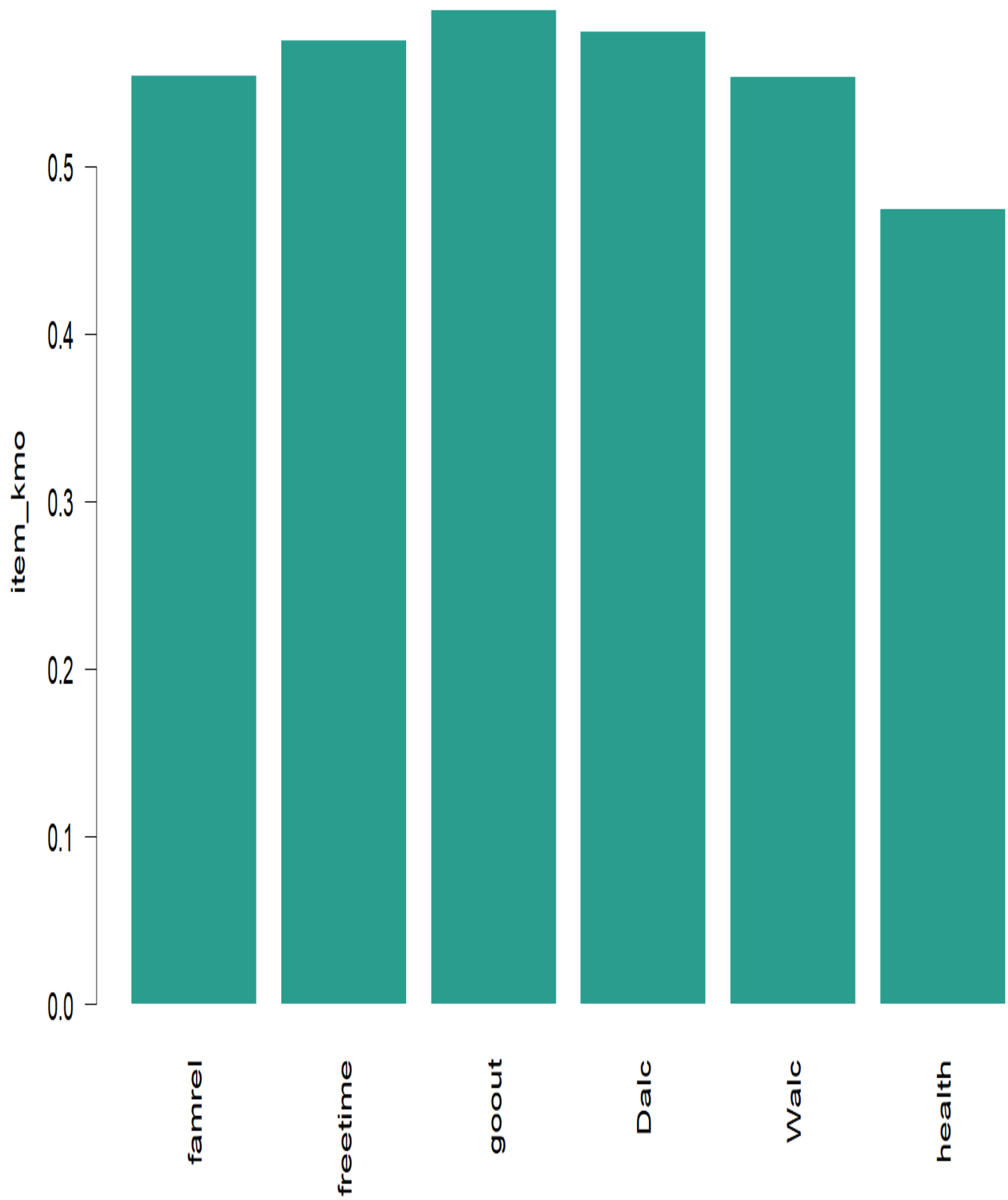
Factor Analysis for Questionnaire Data - rotated factor loadings



Factor Analysis for Questionnaire Data - spearman correlation matrix



Factor Analysis for Questionnaire Data - item kmo



Factor Analysis for Questionnaire Data verified results

