applied sciences

MDPI

Supplemental Information

Projection of the 151 x 6 data matrix comprising the three olfactory subtest results, the TDI sum score and the two olfactory self-ratings obtained in n = 151 patients. **A:** Scree-plot of the amount of variation of the data captured by each principal component (PC). **B:** Computed ABC analysis of the eigenvalues of the PCs shown in panel A as an alternative method for the selection of the relevant PCs as demonstrated in [1]. The ABC plot (blue line) shows the cumulative distribution function of the eigenvalues, along with the identity distribution, x_i = constant (magenta line), and the uniform distribution (green dotted line). The red lines indicate the borders between ABC sets "A", "B" and "C". Only set "A" containing the most profitable items was selected, i.e., PCs 1 and 2. **C:** Plot of the eigenvectors of the variables in PCA dimensions (Dim) 1 and 2. **D and E:** Bar graphs of the contributions of each variable to PC1 and PC2, respectively. The dashed horizontal reference lines correspond to the expected value if the contribution were uniform. **F:** Plots the eigenvectors of the variables in the two dimensions of a nonlinear PCA [2]. The figure has been created using the R software package (version 4.0.5 for Linux; https://CRAN.R-project.org/ (R Development Core Team, 2008)) and the libraries "ggplot2" (https://cran.r-project.org/package=ggplot2 (Wickham, 2009)), "ggpubr" (https://CRAN.R-project.org/package=ggpubr [3]), "FactoMineR" (https://cran.r-project.org/package=FactoMineR [4]), "ABCanalysis" (https://cran.r-project.org/package=ABCanalysis [1]) and bioplotr (https://github.com/dswatson/bioplotr [5]).

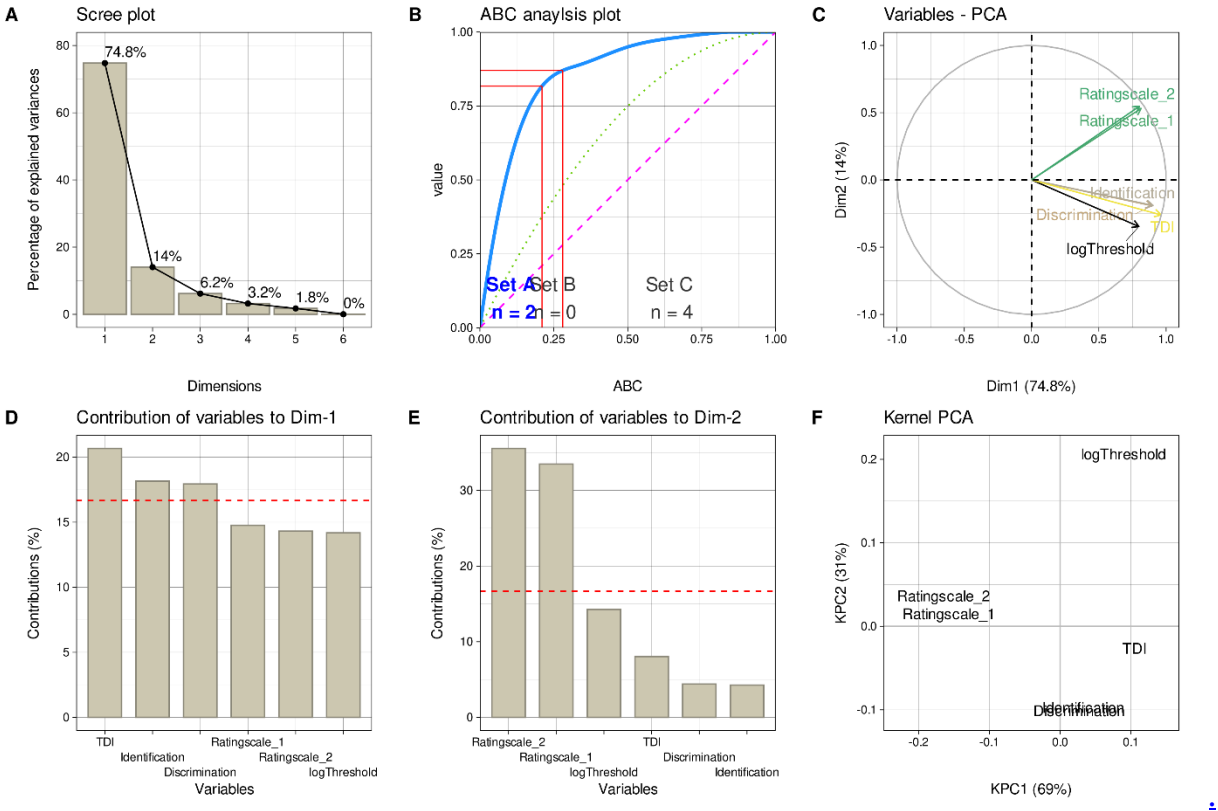

Figure S1. Results of a principal component analysis without quality-of-life.

The assignment rule for olfactory diagnoses from self-assessment was of the form "IF self-assessment < breakpoint #1 then anosmia ELSE IF self-assessment < breakpoint #2 THEN hyposmia, ELSE normosmia". All possible combinations of two consecutive breakpoints along increasing self-assessment scores were analyzed in terms of balanced

accuracy of the odor diagnosis obtained. This was repeated 1,000 times with bootstrap-sampled data sets of 100 cases each. The plot shows the median (horizontal line in boxes) and 95 % confidence interval (colored boxes) of the minimum assignment accuracy among the three olfactory diagnoses. Breakpoint #1 is shown along the abscissa, while breakpoint #2 is coded as the color of the confidence bars. For visual orientation, the vertical lines mark the boundaries of breakpoint #1 to which the respective breakpoint #2 belongs. The figure has been created using the R software package (version 4.0.5 for Linux; https://CRAN.R-project.org/ (R Development Core Team, 2008)) and the libraries "ggplot2" (https://cran.r-project.org/package=ggplot2 (Wickham, 2009)) and "ggpubr" (https://CRAN.R-project.org/package=ggpubr [3]).

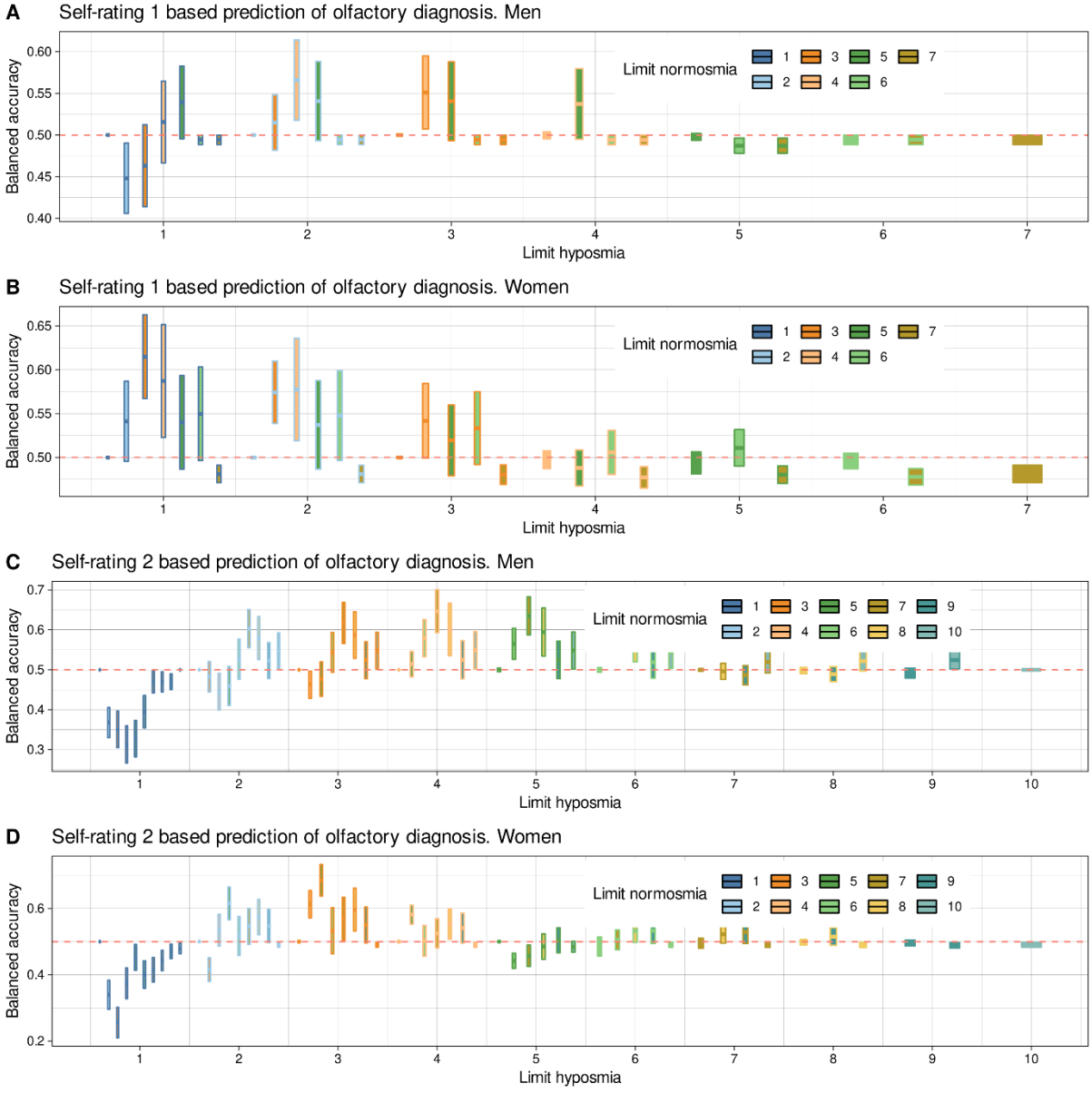

Figure S2. Exhaustive rule findings to assign the olfactory diagnosis from the self-rating.

References

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