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International Network on
Brief Interventions for
Alcohol & Other Drugs



Working with hazardous and harmful drinkers:

**Derivation and validation of a model for
predicting distinct general practitioners groups**

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Conflict of interests

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Introduction

- GPs attitudes towards the patient with alcohol-related problems affects the implementation of screening and brief interventions^{1,2}
- Screening and brief interventions rates are associated with alcohol-related training^{2,3,4}
- Training influences GPs attitudes^{2,3,4}

Introduction

- Training increases SBI rates for those with more positive attitudes⁴
- Training can have a negative impact on GPs with more negative attitudes⁴
- Distinct training effects suggests distinct groups of GPs

Objectives

1. To determine if GPs' attitudes provide evidence of the existence of distinct groups towards working with hazardous and harmful drinkers
2. To derive and validate a model to predict GPs' group membership

Methods

Study design

- Cross-sectional, analytical study
- Portuguese GPs' proportional random sample, stratified by:
 - Gender
 - Age group
 - Health Region

Methods

Variables

- Portuguese ODHIN WP4 survey:
 - Demographics (age, years of practice, sex, type of practice)
 - Shortened Alcohol and Alcohol Problems Perception Questionnaire (SAAPPQ) in respect of hazardous or harmful drinkers
 - Adequacy
 - Legitimacy
 - Satisfaction
 - Motivation
 - Self-esteem

Methods

Statistical analysis: descriptives

Sample description

- Continuous variables: mean \pm standard deviation
- Categorical variables: frequency distribution

Sample vs. Population

- Age: one sample t-test
- Sex: binomial test

Methods

Statistical analysis: groups (SAAPPQ)

Step 1. Optimal group number: principal component analysis, hierarchical cluster analysis, Kalinsky-Harabasz criterion

Step 2. Group definition

- a) Final classification: k-means partitioning
- b) Group comparison: independent samples t-test, χ^2 test

Step 3. Classification model

- a) Derivation cohort: logistic regression analysis, ROC curve
- b) Validation cohort: independent sample classification, Cohen's kappa

Results

Sample description

- $n = 234$ (4.2% of total)
- Age = 52.3 ± 8.7 years
- Years of practice = 23.0 ± 9.4 years
- Female = 150 (64.1%)
- Type of practice:
 - Urban = 104 (44.4%)
 - Mixed = 96 (41.0%)
 - Rural = 34 (14.5%)

Results

Sample description

SAAPPQ

Dimension	Mean \pm SD
Legitimacy	11.3 \pm 1.8
Adequacy	9.7 \pm 2.0
Motivation	8.6 \pm 1.9
Self-esteem	7.9 \pm 2.4
Satisfaction	6.7 \pm 2.2

Results

Sample vs. Population

- Age

- Total: $t_{Student}(233) = -0.60, p = 0.55$
- Female: $t_{Student}(149) = -0.34, p = 0.74$
- Male: $t_{Student}(83) = -0.23, p = 0.82$

- Sex

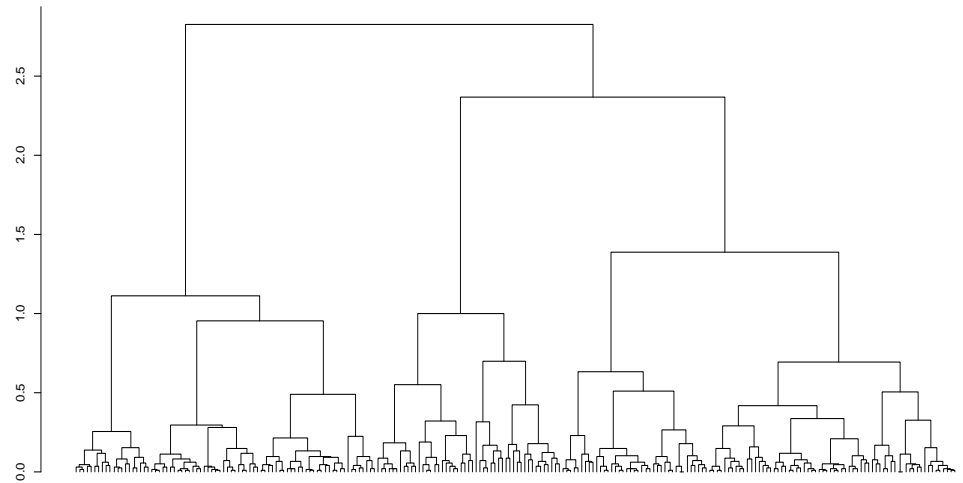
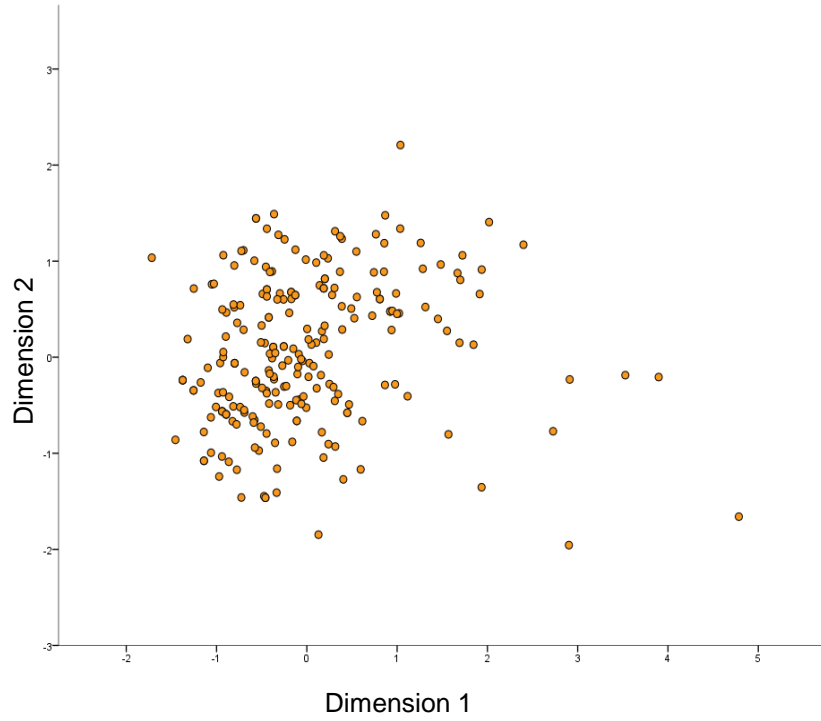
- binomial test = $-1.15, p = 0.12$

Results

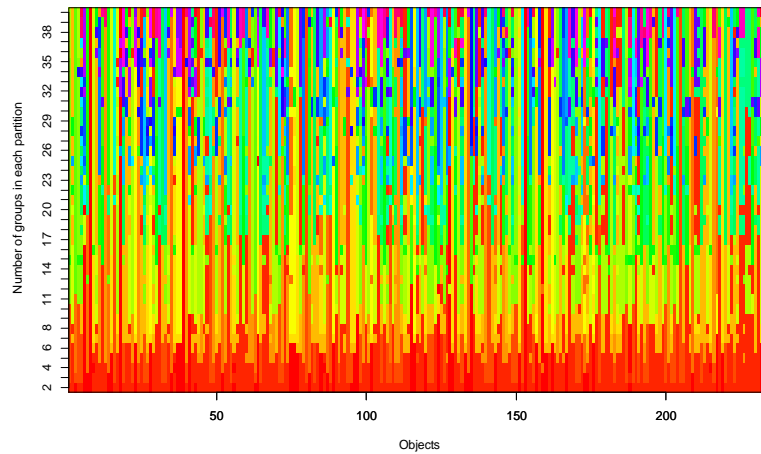
Groups (SAAPPQ)

Step 1 – Optimal group number

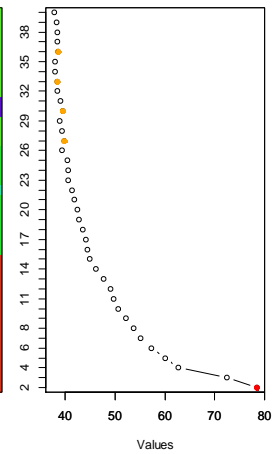
Results



K-means partitions comparison



calinski criterion



Results

Groups (SAAPPQ)

Step 2 – Group definition

a) Final classification

Results

Group A (n = 102)

Dimension	Mean
Legitimacy	11.7
Adequacy	10.8
Motivation	9.7
Self-esteem	9.5
Satisfaction	8.1

Group B (n = 132)

Dimension	Mean
Legitimacy	11.0
Adequacy	8.8
Motivation	7.7
Self-esteem	6.7
Satisfaction	5.6

Results

Groups (SAAPPQ)

Step 2 – Group definition

b) Group comparison

Results

Group A (n = 102)

Group B (n = 132)

p

Age	50.4 ± 9.6	Age	53.8 ± 7.7	0.004
Years of practice	21.4 ± 10.2	Years of practice	24.2 ± 8.6	0.03
Sex: female male	46.4% 53.6%	Sex: female male	62.0% 38.0%	0.02
Type of practice: urban mixed rural	46.1% 42.2% 11.7%	Type of practice: urban mixed rural	43.2% 40.2% 16.6%	0.57

Results

Groups (SAAPPQ)

Step 3 – Classification model

a) Derivation cohort (n = 156)

Dimension	OR	p	95% C.I.
Motivation	3.85	<0.001	2.15 – 6.90
Self-esteem	3.20	<0.001	2.03 – 5.05
Adequacy	2.49	<0.001	1.53 – 4.04

Omnibus test: $p < 0.001$

Hosmer-Lemeshaw test: $p = 0.67$

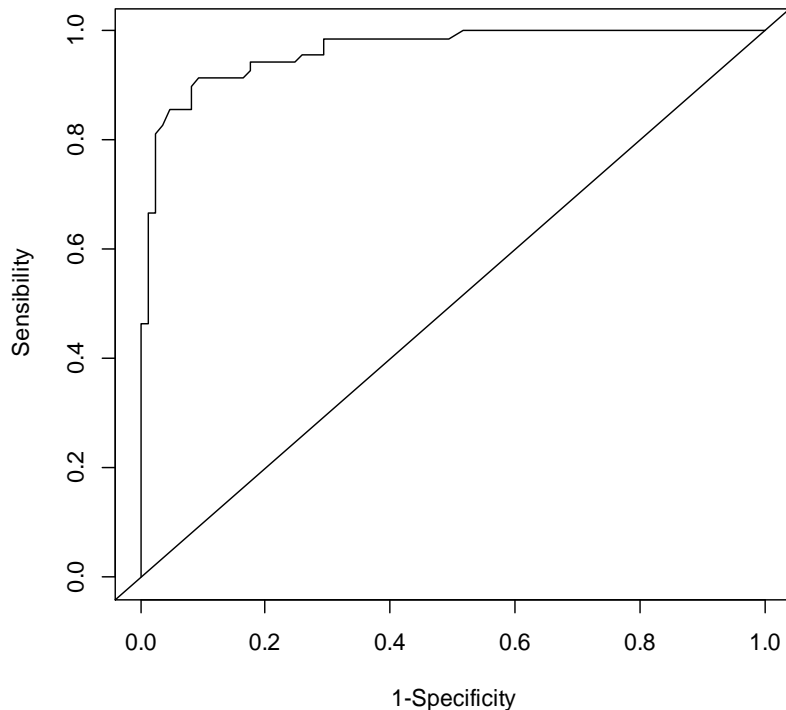
Nagelkerke $R^2 = 0.788$

Results

Groups (SAAPPQ)

Step 3 – Classification model

a) Derivation cohort (n = 156)



AUC	0.96, $p < 0.001$
Accuracy	90.9%
Sensitivity	91.3%
Specificity	90.6%

Results

Groups (SAAPPQ)

Step 3 – Classification model

b) Validation cohort (n = 78)

Accuracy	91.0%
Sensitivity	93.2%
Specificity	88.2%
Cohen's kappa	0.82, $p < 0.001$

Conclusion

1. GPs' attitudes provide evidence of the existence of distinct groups towards working with hazardous and harmful drinkers
2. A model to predict GPs' group membership was derived and validated

Future research

GPs' attitudes provide evidence of the existence of distinct groups towards working with hazardous and harmful drinkers

Should we adjust our training programs to these groups?

Will this increase SBI rates?

Thank you!

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