Validated prediction model of subthreshold depression in European and Australian older adults with vision impairment
Validated Prediction Model of Depression in Visually Impaired Older Adults

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Subthreshold depression is highly prevalent in visually impaired older adults and an important risk factor for major depressive disorder. For early diagnosis and treatment, it is important to identify patients who are at high risk of having subthreshold depression.
Background

- Depression is prevalent
- Early diagnosis and treatment may prevent worse
- Selective prevention
- However, often not noticed


Goals

• To **determine a risk prediction model** to identify those people who are most at risk of subthreshold depression

• To **internally validate** this prediction model with state of the art statistical possibilities

• To **externally validate** this prediction model in a comparable sample to increase generalisability
I Had a Black Dog

https://www.youtube.com/watch?v=XiCrnlLQGYc
Hypothesis

Acceptance of vision loss

Vision related QoL

Health status

History depression

Received care

Visual acuity

Time of onset

Cause of vision loss

Gender

Age

Comorbidity

Gender

Education

Country of birth

Living alone

Social support

Work

Time of onset

Comorbidity

Received care

Health status

History depression

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Work

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Country of birth

Hypothesis
Design

- Cross sectional study
- Baseline data of two RCTs
- Dutch/Belgian, N=873
- Australian, N=124
- Outpatient low vision rehabilitation
- 50 years and older
- Not cognitively impaired (6-item MMSE)
Questionnaires

- Subthreshold depression: CES-D (≥16) and PHQ-9 (≥10)
- Acceptance: AVL and ICQ
- Vision related QoL: LVQOL and VQL index
- Health status: EQ-5D
- Low vision rehabilitation files
Statistical Analysis

- Rash analyses: psychometric properties and person measures
- Multivariable logistic regression in Dutch/Belgian sample
- Internal validation: bootstrapping and cross-validation
- External validation: same analyses for Australian sample
Study population (combined):

- 35% subthreshold depression
- 61% female
- Mean age of 72 years
- 61% somatic comorbidity
- 19% history of depression
- 46% MD, 16% Glaucoma, 4% DR
- 10% had work
- 47% lived alone
Results

Acceptance of vision loss
Vision related QoL
Health status
History depression
Received care
Visual acuity
Time of onset
Cause of vision loss

Social support
Living alone
Country of birth
Education
Work
Lower age
Female gender
Comorbidity

Comorbidity

Female gender

Comorbidity
Results

• Good internal validation:
  – 30% of variance explained

• Good external validation:
  – same predictors were found
  – increased generalisability
Conclusions

• Many **predictors comparable** to those found in the general population: female gender, living alone, having a history of depression and having received mental health care in the past.

• Some **predictors specific** for visually impaired older population: relatively younger age, acceptance of vision loss.

• Professionals should be **aware of these risk factors** and especially screen and monitor people who are most at risk.

• **Interventions** could be aimed at increasing acceptance of vision loss to prevent depression.
Discussion

- Limitations:
  - Causality can not be inferred based on the cross-sectional data.
  - Different questionnaires were used to determine similar (latent) constructs, which may have confounded results.

- Strengths:
  - Large sample sizes
  - Rasch analysis to ensure psychometric properties
  - Our model is unique, because we validated it in a European and Australian sample, which may be closer to real world practice than previous studies limited to single region populations.
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the Hague, 25-29 June 2017

www.vision2017.org
Thank you!