Diagnosing Anxiety Disorders in Primary Care: A systematic review and meta-analysis

Elena Olariu¹,²,³, Carlos G. Forero²,³, José-Ignacio Castro-Rodriguez¹,²,⁴, María Teresa Rodrigo Calvo¹, Pilar Álvarez⁴, Luis Miguel Martín-López⁴, Núria D. Adroher², María Jesús Blasco Cubedo², Gemma Vilagut¹,², Miquel A. Fullana⁴, Jordi Alonso¹,²,³

1 Universitat Pompeu Fabra (UPF), Department of Experimental and Health Sciences
2 Health Services Research Unit, IMIM - Institut Hospital del Mar d'Investigacions Mèdiques
3 CIBER Epidemiología y Salud Pública (CIBERESP)
4 Institut de Neuropsiquiatria i Addiccions, Parc de Salut Mar, Barcelona

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Facts of the Past

- Abraham Lincoln - Severe Generalized Anxiety disorder?

- Emily Dickinson - agoraphobia?
Background

Anxiety Disorders (AD)

1. Early onset
2. Tendency toward chronicity
3. High comorbidity rates
4. Great economic burden
5. 1-year prevalence: 11%

1. Kessler et al 2008
2. Beesdo et al 2009
4. Gustavsson et al 2010
5. Kessler et al 2009
Background

Anxiety disorders in Primary Care

1. Commonly seen diagnosis
2. Challenging diagnosis
3. Can be effectively treated

1. Toft et al 2005
2. Culpepper et al 2003
3. Roy-Byrne et al 2010
No systematic reviews assessing the diagnostic accuracy of GPs diagnoses of anxiety disorders have been performed so far.

**OBJECTIVE**

To systematically assess and meta-analyze the diagnostic accuracy of:

- GPs’ assisted (i.e., using severity scales/diagnostic instruments) and unassisted (without such tools) diagnoses of anxiety disorders
Methods (I)

- **Information sources**: 7 databases
- **Search strategy**: initially designed in Embase & then translated to the rest of the databases
- **Eligibility criteria**: articles in English, Spanish, French, German from January 1980 to June 2014

### Study Characteristics

<table>
<thead>
<tr>
<th>Population</th>
<th>Children and/or adults attending Primary Care Units</th>
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<tbody>
<tr>
<td>Test</td>
<td>GPs’ routine diagnoses of any anxiety disorder</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Sensitivity (SN), Specificity (SP), Prevalence</td>
</tr>
<tr>
<td>Study design</td>
<td>Observational studies, experimental studies</td>
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</tbody>
</table>
Methods (II)

- **Data extraction:**
  - 7 independent reviewers, working in pairs
  - Discrepancies: consensus/3rd reviewer
  - Standardized data extraction form

- **Quality Assessment:** QUADAS-2 tool

- **Analytic Strategy**
  - Descriptive analysis
  - Data synthesis
    - Coupled forest plots
    - Random-effects meta-analysis model
    - Covariates: method of diagnosis, type of anxiety disorder, funding sources, age, specific QUADAS-2 items
Results (I)

- 3424 abstracts identified through database searching
- 167 additional records identified through other sources

- 3591 abstracts/records
  - 84 duplicates removed
  - 3030 abstracts/records excluded
  - 477 full-text articles assessed for eligibility
    - 448 full-text articles excluded
    - 29 studies included in qualitative synthesis
    - 24 studies included in quantitative synthesis (meta-analysis)
Results (II) – Included Studies

- Mean patient age = 48.8 years (SD=6.94);
- Total sample size: 34.902
Results (III) – Included Studies

Disorder Prevalence Across Included Studies

- Median Prevalence
  - 50.3%
  - 16.4%
  - 1.5%

Prevalence and Median Graph

- Prevalence
- Median

Studies Included:
- Ajit Avasthi et al. 2006
- Al-Shanqiri et al. 1992
- Azevedo Marques et al. 2008
- Beka et al. 1999
- Balslev et al. 2007
- Berger et al. 2011
- Boris et al. 1998
- DASKAP study
- El-Farouk El Safiee et al. 1996
- FIP study (unblinding information)
- FIP study (disclosure of screening information)
- GAD-P Study
- Kemeyer et al. 1993
- Linkoping Study
- Lowe et al. 2002
- McInerney et al. 1999
- McLeod et al. 2010
- NEDDA study
- Norton et al. 2009
- Norway study
- Peabody et al. 1995
- Pudifoot et al. 2012
- Sordahl et al. 2012
- Spitzer et al. 1994
- Weiller et al. 1999

10/11/2014
Results (IV) – Included Studies

Included Studies - language

- English: 80%
- Spanish: 10%
- French: 5%
- German: 0%

Included Studies: country of origin

- High Income countries: 60%
- Low/Medium Income countries: 10%

Included Studies: Funding

- Industry sponsorship: 50%
- No Industry sponsorship: 60%
# Results – Main Findings

<table>
<thead>
<tr>
<th>Study</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
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<tbody>
<tr>
<td>NESDA study 2004-2007</td>
<td>9%</td>
<td>99%</td>
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<tr>
<td>Kirmayer 1993</td>
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<td>Lowe 2000-2001</td>
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<tr>
<td>Borus 1986</td>
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<tr>
<td>Al-Shammari 1993</td>
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<td>McGrady 2010</td>
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<tr>
<td>DASMAP study 2005-2006</td>
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<tr>
<td>FIP study 2000a</td>
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<tr>
<td>Linkoping 1994-1996</td>
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<tr>
<td>Ajit Avasthi 2006</td>
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<tr>
<td>GAD-P study 2000</td>
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<tr>
<td>Olfson 1995</td>
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<tr>
<td>FIP study 2000b</td>
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<tr>
<td>Norway General Practice Study 2001</td>
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<tr>
<td>Weiller 1998</td>
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<tr>
<td>Puddifoot 2007</td>
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<tr>
<td>El-Farouk El Rufai 1996</td>
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<td>Norton 2009</td>
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<td>Martinez Bernardos 1999</td>
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<tr>
<td>Spitzer 1992-1993</td>
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<td>Berger 2011</td>
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<td>Balestrieri 2007</td>
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<td>Baca 1999</td>
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<tr>
<td>Sorsdahl 2012</td>
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<td>Azevedo Marques 2008</td>
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</tbody>
</table>
Results – Main Findings

SN=44.5%  SP=90.8%

Legend

1 Weiller 1998
2 Spitzer 1992-1993
3 Sorsdahl 2012
4 Puddifoot 2007
5 GAD-P study 2000
6 Kirmayer 1993
7 FIP study 2000a
8 FIP study 2000b
9 DASMAP study 2005-2006
10 El-Farouk El Rufaie 1996
11 Berger 2011
12 Borus 1986
13 Norway General Practice Study 2001
14 Olsson 1995
15 NESDA study 2004-2007
16 Norton 2009
17 Martínez Bernardos 1999
18 McGrady 2010
19 Linkoping 1994-1996
20 Lowe 2000-2001
21 Ajit Avasthi 2006
22 Azevedo Marques 2008
23 Al-Shammari 1993
24 Balestrieri 2007
25 Baca 1999
Results – Main Findings

SN = 63.6%  SP = 87.9%
SN = 30.5%  SP = 91.4%
Results – Main Findings

● Industry funded studies – higher diagnostic sensitivity (SN=63.4% vs. SN=28.6%, p-value=0.01)
● Identification rates – constant over time (p-value=0.998)
● Type of anxiety disorder: not statistically significant
Results – Risk of bias

- Risk of bias: Domain 3 - Reference Standard: **Could the reference standard, its conduct, or its interpretation have introduced bias?**
  - *Is the reference standard likely to correctly classify the target condition?*
  - *Were the reference standard results interpreted without knowledge of the results of the index test?*

- Applicability concerns: **Are there concerns that the included patients and setting do not match the review question?**

**QUADAS-2 related covariates: not statistically significant**
## Discussion

- **Primary Care: different environment**

<table>
<thead>
<tr>
<th>Patient Barriers</th>
<th>Provider Barriers</th>
<th>System Barriers</th>
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<tbody>
<tr>
<td>Resistance to disclose anxiety symptoms</td>
<td>Limited appointment times</td>
<td>Current guidelines = impractical for routine use</td>
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<td>Somatic rather than emotional complaints</td>
<td>Concerns about potential patient stigma</td>
<td>Productivity pressures</td>
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<td></td>
<td>Inadequate knowledge of diagnostic procedures</td>
<td>Inadequate continuity of care</td>
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<td></td>
<td>Interview styles not encouraging psychosocial disclosure</td>
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</table>
Limitations

- Most included studies: cross-sectional GP assessment.
- Not enough studies to:
  - Adjust for severity of anxiety disorder
  - Adjust for comorbidity with depression
  - Stratify analysis by age
Conclusions

- GPs have difficulty in diagnosing anxiety disorders in true cases

Detection improves

Diagnostic tools
Conclusions
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