ENVIRONMENTAL RISK FACTORS DIFFERENCES ACROSS DIAGNOSTIC CATEGORIES - the EUGEI STUDY

Victoria Rodriguez Garcia
PhD student department of psychosis studies
Institute of psychiatry, psychology and neuroscience
King’s college London
DISCLOSURES

• I have no financial relationships to disclose
BACKGROUND

VS
## ERF – PUBLISHED M-A EVIDENCE

<table>
<thead>
<tr>
<th>RR/OR</th>
<th>SCHIZOPHRENIA-SPECTRUM DISORDER (SSD)</th>
<th>AFFECTIVE PSYCHOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBANICITY (high urban)</td>
<td>RR 2.07 (Vassos, 2012)</td>
<td>IRR 1.64 (Castillejos, 2018)</td>
</tr>
<tr>
<td>MIGRATION (1st gen)</td>
<td>RR 2.3 (Bourque, 2010), 2.7 (Canton-Graae, 2005)</td>
<td>IRR 1.28 (Castillejos, 2018)</td>
</tr>
<tr>
<td>CANNABIS USE (high exposure)</td>
<td>OR 3.9; RR 2.77 (Marconi, 2016)</td>
<td>OR 2.97 (mania; Gibbs, 2015)</td>
</tr>
<tr>
<td>CHILDHOOD TRAUMA</td>
<td>OR 2.78 (Varese, 2012)</td>
<td>OR 2.63 (BD; Palmier-Claus, 2018)</td>
</tr>
<tr>
<td>PATERNAL AGE</td>
<td>40-45: 1.22 ; &gt;50: 1.66 (Miller, 2011);</td>
<td>OR 1.37 ns (BD; Frans, 2008)</td>
</tr>
<tr>
<td>OBSTETRIC COMPLICATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.Birth weight &lt;2.500</td>
<td>1.67 (Cannon, 2002)</td>
<td>1.15 ns (Scott, 2008)</td>
</tr>
<tr>
<td>.Asphyxia</td>
<td>1.74 (Cannon, 2002)</td>
<td></td>
</tr>
<tr>
<td>.Maternal preeclampsia</td>
<td>1.37 (Dachew, 2018)</td>
<td></td>
</tr>
<tr>
<td>SLE</td>
<td>3.19 (Beards, 2013)</td>
<td></td>
</tr>
<tr>
<td>ETHNIC MINORITY (low density)</td>
<td>IRR 2.36 – 6.6 (Bosqui, 2014); OR 2.4 (Olbert, 2018)</td>
<td></td>
</tr>
</tbody>
</table>
AIMS

• Are the ERF differently distributed between affective psychosis and schizophrenia-spectrum disorder subgroups?
• Are the ERF differently associated with risk to diagnostic subgroups?
• Do the amount of ERF differ between diagnostic categories?
  (Maudsley Environmental Score)
METHODS

Sample:
1130 cases
1499 controls
(16 European cities; EUGEI study)
METHODS

ENVIROMENTAL RISK FACTORS

- Urbanicity
- Migration
- Cannabis
- Childhood trauma

DIAGNOSTIC GROUPS

- Control (n=1503)
- Schizophrenia-spectrum disorder (n=738)
- Bipolar Disorder (n=128)
- Psychotic Depression (n=138)
MULTINOMIAL LOGISTIC REGRESSION

- Urbanicity
- Migration
- Cannabis
- Childhood trauma
- Ethnicity
- Gender
- Age
- Site

Multinomial logistic regression model

CONTROLS
- SCHIZOPHRENIA-SPECTRUM DISORDER
- BIPOLAR DISORDER
- PSYCHOTIC DEPRESSION

Polychotomous categorical variable
**URBANICITY** (Categorised per density: >4500/km² urban; <500/km² rural)

**MULTINOMIAL REGRESSION**

- Schizophrenia-spectrum disorder RRR 1.5, p=0.001
- Bipolar disorder RRR .93, p=0.752
- Psychotic Depression RRR .75, p=0.187

Pearson chi²(3) = 17.2188
Pr = 0.001
**MULTINOMIAL REGRESSION**

- Schizophrenia-spectrum disorder RRR 0.97, p=0.835
- Bipolar disorder RRR 1.38, p=0.277
- Psychotic Depression RRR 1.07, p=0.834

**Pearson chi2(3) = 7.7451**

P = 0.052
CANNABIS USE

• Lifetime cannabis use
• Lifetime frequency

(Di Forti, 2019; The Lancet)
CANNABIS EVER

Pearson chi2(3) = 61.1094
Pr < 0.001

% current Cannabis

- control
- SSD
- Bipolar Disorder
- Psychotic Depression

current cannabis (control ref)

RRR

Psychotic Depression 1.01
Bipolar Disorder 2.23**
SSD 1.72**

0.7 1.2 1.7 2.2 2.7

** <0.001
* <0.005

MULTINOMIAL REGRESSION
schizophrenia-spectrum disorder RRR 1.72, p<0.001
Bipolar disorder RRR 2.23, p<0.001
Psychotic Depression RRR 1.01, p=0.972
CANNABIS LIFETIME FREQUENCY

Pearson chi^2(6) = 149.2075
Pr < 0.001
CHILDHOOD TRAUMA

- Childhood Experience of Care and Abuse (CECA) (*Bifulco*, 1994)

- Categories; lifetime:
  - Physical abuse
  - Psychological abuse
  - Sexual abuse
  - House discord
  - Bullying
CHILDHOOD TRAUMA

Childhood adversity across diagnosis

- Physical (% yes)
- Psychological (% yes)
- Sexual (% yes)
- House disc (% yes)
- Bullying (% yes)

Control
Schizophrenia-spectrum disorder
Bipolar Disorder
Psychotic Depression
## CHILDHOOD TRAUMA – MLR

<table>
<thead>
<tr>
<th>CONTROL (ref)</th>
<th>SCHIZOPHRENIA-SPECTRUM DISORDER</th>
<th>BIPOLAR DISORDER</th>
<th>PSYCHOTIC DEPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL ABUSE</td>
<td>2.27 (p &lt; 0.001)</td>
<td>1.52 (p = 0.150)</td>
<td>1.31 (p = 0.350)</td>
</tr>
<tr>
<td>PSYCHOLOGICAL ABUSE</td>
<td>2.1 (p &lt; 0.001)</td>
<td>1.3 (p = 0.458)</td>
<td>2.68 (p &lt; 0.001)</td>
</tr>
<tr>
<td>SEXUAL ABUSE</td>
<td>1.99 (p = 0.002)</td>
<td>1.03 (p = 0.943)</td>
<td>2.17 (p = 0.032)</td>
</tr>
<tr>
<td>HOUSE DISCORD</td>
<td>1.64 (p &lt; 0.001)</td>
<td>1.61 (p = 0.016)</td>
<td>1.56 (p = 0.019)</td>
</tr>
<tr>
<td>BULLYING</td>
<td>1.95 (p &lt; 0.001)</td>
<td>1.57 (p = 0.048)</td>
<td>2.82 (p &lt; 0.001)</td>
</tr>
</tbody>
</table>
LOAD OF ERF ACROSS DIAGNOSIS


**P < 0.001
*P < 0.005

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Maudsley polyenvironmental score (control ref)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSD</td>
<td>1.3**</td>
</tr>
<tr>
<td>Affective</td>
<td>1.28**</td>
</tr>
<tr>
<td>Psychotic Depression</td>
<td>1.17*</td>
</tr>
</tbody>
</table>

**RRR**

0.7 0.9 1.1 1.3 1.5

0 10 20 30 40 50 60

Amount of ERF

control  SSD  Affective

0-1 ERF  2-3 ERF  4 or more ERF
SUMMARY

• Living in urban areas increase risk for schizophrenia-spectrum disorder.

• No evidence than being 1st generation migrant increase risk for any diagnostic category.

• Lifetime use of cannabis predicted SSD and BD; daily use represents risk for all diagnostic categories.

• All clinical subgroups associated with bullying and house discord. Different experiences may lead to different diagnosis (physical abuse to schizophrenia spectrum disorder).
CONCLUSIONS

• Being exposed to ERF predispose to develop psychotic disorder
• ERF load differs among diagnostic categories.
• Analyses examining different associations between ERF with the different diagnostic groups are warranted.
THANK YOU ALL FOR YOUR ATTENTION

THANKS TO:

• Prof. Robin Murray
• Dr Evangelos Vassos
• GAP Team IoPPN KCL
• Prof. Craig Morgan
• Dr Charlotte Gayer-Anderson

victoria.1.rodriguez@kcl.ac.uk