Socio Environmental Predictors of Psychotic Symptoms in People with First Episode Psychosis

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Background and aims

• The analyses were undertaken by Dr Marc Tibber for this DClinPsy thesis at UCL (awarded 2017) with Vyv Huddy as supervisor.

• Marc has published two papers on component structure of psychotic symptoms (Tibber et al. 2018) and socio environmental predictors of these components Tibber et al. (2019)

• Access to data emerged from longstanding collaboration with Professors Thomas Barnes and Eileen Joyce who led the West London First Episode Study.

• The secondary aims of the study included identifying social and demographic predictors of severity of first episode psychosis. Marc’s project sought to answer these research questions.

• Dr James Kirkbride consulted on epidemiological methodology.
Social predictors of psychosis

• Geographic variation in the *incidence* of psychosis according to:
  • Population density (e.g. Kirkbride et al. 2014)
  • Urbanicity (e.g. Heinz et al. 2013)
  • Income deprivation (O’Donoghue et al. 2016)
  • Low social cohesion (Kirkbride et al. 2007)

• Also in the *severity* of psychosis
  • Increasing expression of symptoms in an urban environment (Ellett, Freeman & Garety, 2008; Veling et al. 2016)
From Interactive Map of Indices of Deprivation

https://data.london.gov.uk/blog/interactive-map-of-indices-of-deprivation/

West London First Episode Psychosis Study Region
Social predictors of symptoms

• First episode psychosis: associations between population density and hallucinations but not paranoia (Oher et al. 2014)

• General population: deprivation associated with increased paranoia but not hallucinations (Wickham et al. 2014)

• Variability may reflect small effect sizes and/or methodological differences
  • Clinical versus nonclinical samples
  • Across neighbourhood or countries
  • Different indices
  • Measures of symptoms at different levels: dimensions (+ve, -ve, dis) vs specific symptoms

• Examined both dimensions and individual symptoms
• We examined an urban population with high variability across a range of socio-environmental indices.
Setting and Participants

• Cross-sectional data were originally collected as part of the prospective West London First-Episode Psychosis (WLFEP) study

• Participants presented to secondary care services within the boroughs of Ealing, Hammersmith and Fulham, Wandsworth, Kingston, Richmond, Merton, Sutton and Hounslow (collected between 1998 and 2006 (follow up data completed 2012))

• Participants included for participation were aged 16 years or over, experiencing a first psychotic episode, had received fewer than 12 weeks of antipsychotic medication.
Participant level variables

• Basic demographic information including age, gender and place of residence was gathered.
  • Participants were assigned to one of five socioeconomic categories based on their occupation using the National Statistics Socio-Economic Classification (NS-SEC) system

• Each participant’s symptoms were characterised by three symptom dimension scores, which captured the severity of their positive, negative and disorganisation symptoms (Tibber et al. 2018)
  • These dimensions were derived from individual item scores on the Scale for the Assessment of Positive Symptoms (SAPS) and the revised version of the Scale for the Assessment of Negative Symptoms (SANS)
Neighbourhood level variables

• We used Census Area Statistics (CAS) for the ward in which participant’s lived at first contact with services, using databases produced by the Office for National Statistics (ONS).

• Indices were determined for:
  • Index of Deprivation (ID) and Index of Multiple Deprivation (IMD)
  • GINI Coefficient for ID and IMD
  • Social Fragmentation Index (SFI)
  • Social Cohesion
  • Ethnic Segregation via Index of Dissimilarity (IDS)
Neighbourhood characteristics

• 345 participants were distributed across 118 neighbourhoods / 8 London boroughs

• Compared to wards across England the region was characterized by higher:
  • Population density / urbanicity (Z=10.04, p<0.001)
  • Higher BAME ethnic density (Z=11, p<0.001)
  • Lower BME ethnic segregation (Z= -4.31, p<0.01)

• But did not differ on:
  • Deprivation (ID and IMDR p > 0.05)
  • Inequality (GINI-ID and GINIS-IMDR, p > 0.05)
  • Social cohesion (as measured by voter turnout was extremely close to the national average:- 33.61% vs. 33.3%, respectively)
<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>n (%)</th>
<th>Median</th>
<th>IQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>–</td>
<td>–</td>
<td>24.16</td>
<td>20–30.23</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>210 (65.83)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>109 (34.17)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>NS-SEC</td>
<td>Managerial and professional</td>
<td>17 (5.33)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Intermediate occupations</td>
<td>21 (6.58)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Routine and manual</td>
<td>50 (15.67)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>182 (57.05)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>49 (15.36)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Schizophrenia</td>
<td>195 (61.13)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Schizophreniform disorder</td>
<td>40 (12.54)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Brief psychotic disorder</td>
<td>3 (0.94)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Delusional disorder</td>
<td>3 (0.94)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Schizoaffective disorder</td>
<td>42 (13.17)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Bipolar disorder</td>
<td>20 (6.27)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Major depression with psychotic features</td>
<td>10 (3.13)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Not recorded</td>
<td>6 (1.88)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DUP</td>
<td>–</td>
<td>–</td>
<td>12</td>
<td>4–44</td>
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<tr>
<td>SAPS total</td>
<td>–</td>
<td>–</td>
<td>32</td>
<td>23–45</td>
</tr>
<tr>
<td>SANS total</td>
<td>–</td>
<td>–</td>
<td>18</td>
<td>7–34</td>
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** indices did not explain significant variance in paranoid delusions or global hallucinations
Summary

• Two symptom dimensions (positive and negative) were associated with a distinct neighbourhood-level risk factors but these were more limited than expected.

• There was no evidence to suggest that the positive symptoms of psychosis were elevated in areas scoring highly environmental adversity or socioeconomic deprivation.

• This was true either at the level of the symptom dimensions or persecutory delusions / hallucinations specifically.
Conclusions

• Participants living in neighbourhoods with highly segregated BME communities exhibited less severe positive symptoms
  • When there is higher segregation between populations this implies reduced fragmentation within a given ethnic group
    >>>> higher potential for bonding social capital (consistent with Kirkbride et al. 2007 findings in south London)
  • Also several studies finding the risk of psychosis diminishes as the proportion of individual’s ethnic group increases (Boydell et al. 2001; Schofield et al. 2017 and Velling et al. 2008).
Future Directions

• The cross-sectional design prevents the attribution of causality and highlights the need for more longitudinal research that can begin to elucidate the underlying mechanisms that link the environment to symptom expression.

• Combination of regional datasets could be achieved by standardising symptom variables (e.g. converting to Clinical Global Impression), which would allow the effect of different levels of geographic granularity to be determined.