Social Adversity, Abuse and Psychosis

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&

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Brief Plan of Talk

• Outline some of the evidence concerning Social Adversity and Psychosis

• Consider hypothesised pathways of action

• Consider the clinical and research implications of this evidence
Social Adversity - Tier Zero?
Typical Course of Psychosis (Larsen et al 2001)

premorbid phase

very early symptoms

psychotic symptoms

Treatment & Recovery

Relapse?

Primary Care

Early detection of psychosis and relapse/EI for bodies and minds

Adolescence to Adulthood Transition

Early Detection & Intervention in the ‘at-risk mental state’ (ARMS) phase (Early Detection)

Early Intervention after onset of psychosis (EI)

Maintaining outcomes beyond EI service involvement: in primary care, CMHT, Recovery and AO services)
Social determinants of health literature

Health Inequalities/Social Determinants of Health

- Whitehall studies Marmot et al 1978 and Marmot et al 1991
- Wilkinson and Marmot WHO 1998
- The status syndrome, Michael Marmot 2004
- Marmot and Wilkinson 2006
- Wilkinson and Pickett 2009

Pathways to illness...

- Material (exposure to cold, infections, malnutrition)
- Behavioural (smoking, diet, physical activity)

A 3rd pathway to illness, perhaps especially important in economically advanced societies with extreme inequality...

- Psychosocial (subjective experience → stress → physiology)
Are the poor always with us?

“In countries like Britain people last lived lives as unequal as today in 1845 when Charles Dickens wrote Hard Times”

“Levels of inequality last seen in slave owning societies…”

Daniel Dorling 2010
Injustice: Why Social Inequality Persists
Social determinants of health-key questions for psychosocial pathways

Brunner and Marmot, 2006 Social organisation, stress and health In Marmot and Wilkinson Social Determinants of Health2006

• Q1. Is it plausible that the organisation of work, degree of social isolation and sense of control over life could affect the likelihood of developing and dying from illnesses such as diabetes and cardio-vascular disease?

• Q2. If its plausible…do any of the biological pathways actually operate?
Socio-Economic Adversity and Psychosis

“...in contexts like the one I am describing, the decay of the world as it was ...can mean people being beset by the world (now) as a place that is abject, bleak, dark, ugly, unfulfilling and violating”
Socio-Economic Adversity Literature

Social drift


Social Causation


- Linked register study
  - Birth register 1963-1983
  - In-patient discharge register 1987-2002
  - Population and Housing census 1970, 1980 and 1985
  - Total Enumeration Income Survey 1990

- Large sample size 2.1M

- Multi-factoral definition of social adversity
  - Rented apartment
  - Low s/e status
  - Single parent household
  - Unemployment
  - Receipt of welfare

- Adjusted for sex, age, urbanicity, foreign born parents, paternal age, paternal history of psychosis and drug/alcohol abuse

- Risk increased with increased exposure - those with exposure to four aspects of adversity had 2.7 fold higher risk

- Population attributable fraction 19-20%

- Father occupation as only measure of social adversity produced no effect in this as in other studies
Socio-Economic Adversity & Psychosis Literature: Clinical and Research Implications

- Fathers occupation at birth is an inadequate but frequently used measure of socio-economic status

- Socio-economic status is a frequent but an inadequate measure of social adversity and may account for mixed results

- Some of the effect of the social factors was shared... perhaps its not the gradient but the adverse/excluding situations that influence the risk

- Dose response relationship found indicates causality rather than association

- Further research with a more qualitative design is needed to elucidate the underlying mechanisms.
Migration and Psychosis
Migration/ethnic minority status literature

  A prospective study of severe mental disorder in Afro-Caribbean patients. Psychological Medicine, 18, 643-657.


  Understanding the excess of psychosis among the African-Caribbean population in England- Review of current hypotheses, BJP 178 (suppl 40) s60-s68

  Social adversity contributes to high morbidity in psychoses in immigrants- a national cohort study in two generations of Swedish residents. Psychological Medicine, 34, 1025-1033.
More migration/ethnic minority status literature


<table>
<thead>
<tr>
<th>Analysis</th>
<th>Risk ratio</th>
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<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; generation migrants</td>
<td>2.7 (95% CI 2.3-3.2) *p&lt;0.05</td>
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<tr>
<td>n=40 studies</td>
<td></td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; generation migrants</td>
<td>4.5 (95% CI 1.5-13.1) p 0.62</td>
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<td>n=7 studies</td>
<td></td>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; and 2&lt;sup&gt;nd&lt;/sup&gt; generation migrants</td>
<td>2.9 (95% CI 2.5-3.4) *p&lt;0.04</td>
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<tr>
<td>n= 50 studies</td>
<td></td>
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<tr>
<td>Level of Economic Development of region of birth</td>
<td>2.9 (1.5-2.8) developed econ</td>
</tr>
<tr>
<td>n=46 studies</td>
<td>3.6 (3.0-4.4) developing econ</td>
</tr>
<tr>
<td></td>
<td>2.8 (2.0-3.8) low development econ</td>
</tr>
<tr>
<td></td>
<td>*p &lt;0.002</td>
</tr>
<tr>
<td>Predominant skin colour region of birth</td>
<td>4.8 (3.7-6.2) black</td>
</tr>
<tr>
<td>n=43 studies</td>
<td>2.3 (1.7-3.1) white</td>
</tr>
<tr>
<td></td>
<td>2.2 (1.7-2.9) non white/non-black</td>
</tr>
<tr>
<td></td>
<td>*p &lt;0.001</td>
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<tr>
<td>Gender</td>
<td>2.5 (2.0-3.2) male</td>
</tr>
<tr>
<td>n= 42 studies</td>
<td>2.4 (1.8-3.1) female</td>
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<td></td>
<td>p 0.72</td>
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Migration & Psychosis Literature: Clinical and Research Implications

- Social environmental causative role for increased risk in migrants

- Migrants whose skin colour is considerably darker than background population share a common risk exposure

- Experiences of discrimination may foster a paranoid attributional style e.g. Janssen et al 2003

- Mechanism of action-Social Defeat? Chronic stressful experience of outsider status → dopaminergic dysfunction

  ***Protective nature of ethnic density

  ***Range of migrant groups researched mitigates against a single biological or genetic explanation

  ***Risk associated with migration is considerable and cannot be solely accounted for by selection... may be via perceptions of social inequality
Childhood Sexual Abuse and Psychosis
Childhood Trauma & Psychosis Literature


- British National Survey of Psychiatric morbidity 8, 580 adults
- Psychosis established by psychosis screening questionnaire (probables) and then SCAN (definites)
- 60 people identified as having definite or probable psychosis
- Stressful life events elicited retrospectively- severity and timing not established
- Victimisation experiences (sexual abuse, bullying, being taken into care, violence in the home, running away from home, time in childrens institution, being homeless, being expelled from school)

***Large odds ratio’s were produced for all victimisation experiences

***Odds ratio for sexual abuse 15.47 (95% CI 8.2-29.2)

*** Odds ratios after adjusting for inter-relationships between victimising experiences 3.93 (95% CI 1.8-8.6) p 0.001
Childhood Trauma & Psychosis Literature: Potential Clinical and Research Implications

Bebbington et al 2004

• Data viewed (and interrogated) through prism of orthodox genetic and biological vulnerability aetiological model first

• Clustering of victimising experiences (…result of prodromal oddities of behaviour?)

• Data suggestive of social influence to aetiology

• Is experience of CSA linked to adult psychosis because it is a marker for social poverty?

• Limited research in this area

• Need for cohort studies
Childhood Trauma & Psychosis Literature: Potential Clinical and Research Implications


- Unrecognised PTSD?
- Need to integrate psychological level analysis (cognitive and attributional processes, dissociation and attachment) with biological focus on damage to stress regulation (HPA axis)
- Do cognitive and behavioural consequences of trauma make psychosis more likely?
- Are hallucinations decontextualised trauma flashbacks?
- Are paranoid delusions attempts to explain de-contextualised trauma flashbacks?
- Heightened sensitivity to stress - Traumagenic Neurodevelopmental model?
- Synergism of trauma with genetic risk (or parallelism?)
- Effectiveness of timely and appropriate help for victims of CSA
Social adversity and psychosis- hypothesised mechanisms of action

Mirowsky and Ross 1983

Objective characteristics of low social economic status

\[ \downarrow \]

Powerlessness

\[ \downarrow \]

Ext LOC ↔ Victimisation/Exploitation (Threatening conditions of life)

\[ \downarrow \]

Mistrust

\[ \downarrow \]

Paranoia

Bentall & Fernyhough 2008 Social Predictors of Psychotic Experiences: Specificity and Psychological Mechanisms

Schizophrenia Bulletin vol 34 no 6 pp 1012-1020

Poor Source Monitoring

\[ \downarrow \]

Childhood Trauma → Unwanted Intrusive cognitions → Auditory-verbal hallucinations

\[ \downarrow \uparrow \]

Dysfuntional Metacognitive beliefs
But what can I do about Tier Zero?
Social adversity and psychosis -
models of primary prevention


From Albee’s 1985 model of prevention
Incidence of emotional illness in society is a function of

- organic factors + stress + exploitation
- coping skills + self-esteem + support groups

“…increasing our ability to cope with trauma and inequity by learning better coping skills, enhancing our self-esteem and developing better formal and informal social support systems…”

AND

”…reducing our exposure to stressful or traumatic events and increasing our capacity to participate by creating a more just society…”
# Why Social Inequality Persists

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<tr>
<th>Beveridge’s five social evils</th>
<th>Dorlings five beliefs that underpin extreme inequality</th>
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<tbody>
<tr>
<td>Ignorance</td>
<td>Elitism</td>
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<tr>
<td>Want</td>
<td>Exclusion</td>
</tr>
<tr>
<td>Idleness</td>
<td>Prejudice</td>
</tr>
<tr>
<td>Squalor</td>
<td>Greed</td>
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<td>Disease</td>
<td>Despair</td>
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Acknowledgement

• For some of the images and slides I have used…

Dr David Shiers

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Thanks!
How/Pathway/Mechanism

- Mechanism(s) of Action and temporal relationships...

**Bhugra 2000**
Exposure to social adversity in childhood
\[ \downarrow \]
LSE/Internalised sense of disadvantage
\[ \downarrow \]
Increased psychological distress in adulthood

**Janssen et al 2003**
Exposure to social adversity in childhood
\[ \downarrow \]
Perceived Discrimination
\[ \downarrow \]
Delusional ideation
Biological processes involved in social adversity and psychosis


• Psycho-social stress
• Activation of the Hypothalamic-Pituitary-Adrenal Axis (HPA) (one of the primary neural systems triggered by stress exposure) and release of cortisol
• Elevated baseline and challenge induced HPA activity in psychosis-constitutional vulnerability (or allostatic loading McEwan 1998)?
• Some anti-psychotics appear to reduce HPA activity
• Agents that augment stress hormone (cortisol) release exacerbate psychotic symptoms
Cortisol profile in first episode psychosis

Mondelli et al 2010 Schizophrenia Research

- FEP patients experienced more recent stressful events, perceived stress and childhood trauma than controls (p<0.001)
- FEP patients had a blunted CAR but higher daytime levels of cortisol
- Within FEP sub-group number of stressors negatively correlated with daytime cortisol levels
- “…It is indeed possible that an excess of "historical" stressful events in some patients could sensitise the HPA axis so that relatively small stressors could produce high levels of cortisol secretion (stress-sensitivity)…” (Mondelli private correspondence)
Cortisol Profile in At Risk Population

Walker et al 2010 Journal of Abnormal Psychology Longitudinal Changes in Cortisol Secretion and Conversion to Psychosis in At Risk Youth

• Those that convert to psychosis manifest escalating cortisol levels

• This escalation precedes transition to psychosis

• Consistent with the hypothesis that HPA activity can trigger the expression of psychotic symptoms in at risk population
A specific proposal

- NIHR DRF 2010 Application Stress Sensitivity and Prodromal Psychosis
- 60 ARMS participants and 60 matched controls
- Compare for neuro-cognitive functioning, stress-sensitivity and stability of social-psychological functioning
- F/U arms group at 8 weeks to establish change in prodromal symptoms

Hypotheses to be tested
- ARMS group will have greater stress sensitivity, poorer neuro-cognitive functioning and more abnormal/less stable social-psychological functioning than matched controls
- Greater baseline stress sensitivity and poorer/less stable social-psychological functioning will predict worsening of prodromal symptoms in ARMS group
So What?

My research proposal will help to clarify the relationship between neurocognitive aspects of psychological functioning, emotion related psychological processes and prodromal psychosis.

The physiological assessment of emotional functioning I will conduct will help to clarify and profile HPA axis dysfunction in prodromal psychosis.

The brief follow up study I will conduct may indicate the need for further studies of baseline stress-sensitivity and poorer and less stable social-psychological functioning as predictors of transition to psychosis in people with prodromal psychosis.
Measures of neurocognitive aspects of psychological functioning

Jumping to conclusions (JTC) beads task (Garety et al 1991)- researcher administered (10 minutes)

Signal Detection Test (SDT) (Barkus)- researcher administered (10 minutes)
Questionnaire Assessments of Emotional Functioning

20 Item Brief Self-esteem Rating Scale (Lecomte, Corbiere & Laisne 2006)

10 item Acceptance and Avoidance Questionnaire (AAQ-II)

24 item Multidimensional Locus of Control Scale (Levenson 1974)

Brief anticipation of future threats questionnaire

Two minute measure of security of attachment (Bartholomew & Horowitz 1991)

14 item Hospital Anxiety and Depression Scale (Zigmond & Snaith 1983)
Diary Assessments of Emotional Functioning

A method of measuring cognitive and emotional functioning in everyday life.

Has been employed successfully with people with psychosis (Myin-Germeyns, Delespaul & van Os 2003)

Participants complete a 2 minute diary entry up to 10 X per day for 6 days in response to a pseudorandom bleep from a wrist watch

The diary entries record +ve and –ve self-esteem, activity related stress and self-efficacy, momentary paranoia and auditory visual hallucinations and attempts to avoid unpleasant mental content.
Physiological Assessment of Emotional Functioning

Psychosis has been shown to be associated with abnormalities in the functioning of the HPA axis (Walker & Diforio 1997; Mondelli et al 2010).

Adapting the procedure reported by Ellenbogen, Hodgins & Walker with bi-polar patients (2004) I will ask participants to provide saliva specimens via a small cotton wool ball on waking, at 15, 30 45 and 60 minutes post-waking and at 12pm and 8pm on the first two days in which they complete their ESM diaries*.

The collected saliva samples will be appropriately labelled and stored prior to analysis by Salimetrics Europe.
Hypotheses and Data Analysis

Hypotheses

People with prodromal psychosis will have greater stress-sensitivity, poorer neuro-cognitive functioning and more abnormal and less stable social-psychological functioning than a matched control population.

Greater baseline stress-sensitivity and poorer and less stable social-psychological functioning will predict a tendency for prodromal symptoms to worsen at follow up (proof of concept).

Data Analysis

I will compare prodromal and control group using group X sex ANOVA with appropriate co-variates (e.g. educational attainment, age) for most variables.

Multilevel modelling with repeated measures regression analysis will be used to analyse ESM data, variations and casual relationships.

If appropriate I will compare baseline psychological, ESM and cortisol measures in the prodromal group divided into improvement vs deterioration sub-groups.