



# Deficient Affective Experience and Violence in Schizophrenia

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## Introduction I

- Schizophrenia is associated with an increased risk of violence towards others
- Three potential pathways mediate this effect:
  - (i) Schizophrenia + childhood CD / adult APD
  - (ii) Schizophrenia + symptoms of the illness (e.g. TCO)
  - (iii) Schizophrenia + deficits in social cognition



## Introduction II

- The PCL-R has been identified as the single best predictor of future violence by men with schizophrenia. It is composed of three factors:
  - (F I) Arrogant and deceitful interpersonal behaviour
  - (F II) Deficient affective experience (DAE)
  - (F III) Persistent antisocial behaviour and impulsivity
- However, does the trait of DAE confer a risk of violence toward others when it is not associated with a history of antisocial behaviour?

## Introduction III

- Structured clinical risk assessment instruments (e.g. HCR-20):
  - attend to a history of antisocial behaviour (age at first offence + previous violence)
  - rate psychopathy as a global construct using the PCL:SV
- This has implications for a “↑Factor 2 + ↓Factor 3” subgroup\* who fail to reach ‘caseness’ on PCL instruments and present with little previous antisocial behaviour

\* F2 = DAE, F3 = ASB/Impulsivity



## Literature Review

Three areas will be reviewed in turn:

- Relationship between schizophrenia and violent offending
- Aetiology and factorial structure of psychopathy
- Relationship between schizophrenia and psychopathy

## Schizophrenia & Violent Offending

- The weight of evidence from recent research (from a variety of methodological approaches) provides a strong foundation to indicate that persons with schizophrenia are at an increased risk homicide, violent, and non-violent criminality



## Psychopathy I: Neurobiology

- A subgroup of individuals with APD are psychopathic, i.e. APD + Callous & Unemotional (CU) personality profile
- Hallmark feature is instrumental aggression.
  - Suggests underlying aetiology of psychopathy interferes with socialisation
  - Deficits also present in affective processing: lack of fear to aversive events & victim distress cues
- Neuroimaging studies support this line of evidence. Implicates amygdala + OFC dysfunction

## Psychopathy II: Factorial Structure

- Three factor model - Cooke & Michie (2001):
  - (F I) Arrogant and deceitful interpersonal behaviour
  - (F II) Deficient affective experience (DAE)
  - (F III) Persistent antisocial behaviour and impulsivity
- Putative consequences as 2 latent traits:
  - Criminal behaviour + Emotional lability
- Cross-validated on North American & Scottish data
- Equal or superior fit indices to the Newmann et al. (2005) 4 factor model



## Psychopathy & Schizophrenia I

- Prevalence of psychopathic traits is elevated among male offenders with schizophrenia but do not reach diagnostic cut-off for psychopathy:
  - Disease course impacts upon assessment e.g. flat affect
  - Factor 1 traits rarely seen in men with schizophrenia
- However, factors 2 & 3 strongly associated with offending, but index very different characteristics
- The ASB & Impulsivity factor indexes emotionally labile, reactive (life-course persistent) offenders: CD/APD + OFC dysfunction

## Psychopathy & Schizophrenia II

- The DAE factor indexes a profound emotional deficit:
  - a callous lack of empathy, a lack of remorse or guilt, a shallow affect, and a lack of responsibility for their own actions.
- It is the DAE factor which is at the core of the deficits in social cognition and affective processing
- This results in instrumental aggression & lack of responsiveness to distress cues in victims



## Psychopathy & Schizophrenia III

- Tengström et al. (2000) showed that among men with diagnoses of both schizophrenia and psychopathy substance use disorders did not increase the risk for violent recidivism
- Compared men with diagnoses of both schizophrenia and psychopathy with and without a history of substance use disorders
  - No significant differences in (1) number of mean number of offences or (2) mean number of violent offences between

## Hypotheses

- (H1)** In patients with a schizophrenic illness, deficient affective experience will be positively correlated with violent offending
- (H2)** Mean deficient affective experience score will not be significantly associated with the diagnoses of substance misuse and/or dependence
- (H3)** Deficient affective experience will be positively predictive of the presence of violent offending independent of a (i) lifetime history of antisocial behaviour and (ii) diagnoses of substance misuse and/or dependence (SUDs)



## Method: Participants

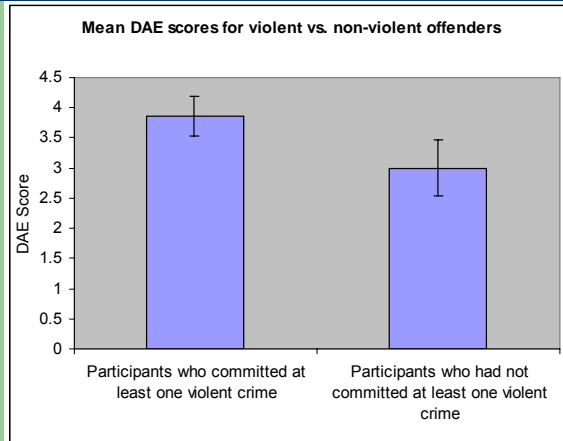
- 246 men with schizophrenic disorders
  - Mean age: 38.1 (SD = 11.1)
  - 81% (199) Schizophrenia
  - 19% (47) Schizoaffective/Schizophreniform disorder
- Mean total PCL-R score: 13.6 (SD = 7.9, max = 40)
  - Mean score factor 1 = 1.74 (SD = 1.8, max = 8)
  - Mean score factor 2 = 3.56 (SD = 2.2, max = 8)
  - Mean score factor 3 = 2.87 (SD = 2.9, max = 10)
- Only 2.4% (6) men reached diagnostic cut-off for psychopathy

## Method: Measures

- Psychopathy Checklist – Revised (Hare, 1991)
  - 20 item rating scale
  - Each item is scored on a three point scale: 0 (item is absent), 1 (is some respects), 2 (item definitely present).
- SCID -1 & -2 (Spitzer et al., 1991)
  - Primary, secondary, tertiary diagnoses made
  - Lifetime and current, axis I and II

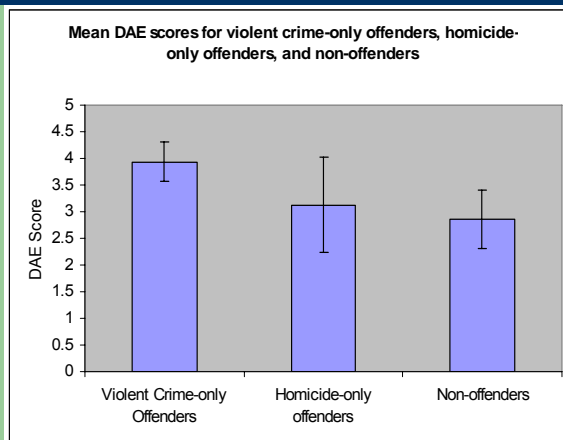


## Results: H1 DAE X Violent Offending



For each bar 95% C.I. are shown:  
Violent =  $3.86 \pm 0.34$   
Non-violent =  $3.00 \pm 0.47$   
Dependent means t-test:  
 $p < 0.005$

## Results: H1 DAE X Violent Offending



For each bar 95% C.I. are shown:  
Violent =  $3.94 \pm 0.36$   
Homicide =  $3.13 \pm 0.90$   
Non-violent =  $2.86 \pm 0.55$

Univariate analyses:  
 $p < 0.005$   
Paired t-tests:  
Violent vs. Non-offenders,  
 $p < 0.005$   
Violent vs. Homicide,  
 $p < 0.05$



## Results: H1 DAE X Violent Offending

- Additionally, Pearson's correlations revealed:
  - DAE Score X Number of violent crimes,  $p < 0.05$
  - DAE Score X Decreasing age at 1<sup>st</sup> violent conviction,  $p < 0.005$
- Hypothesis 1 can be accepted

## Results: H2 DAE $\emptyset$ SUDs

- No significant difference between mean DAE scores for those with substance abuse before 18 vs. those with no history of substance abuse
- No significant difference between mean DAE scores for drug abuse/dependence vs. alcohol abuse/dependence vs. no abuse/dependence
- Hypothesis 2 can be accepted



### Results: H3

## DAE predictive of Violent Offending independent of ASB and SUDs

- In similar analyses, mean factor 3 scores (Persistent antisocial behaviour and impulsivity) were found to be positively correlated with violent criminality
- A binary logistic regression was modelled using the Wald test in a forwards stepwise fashion
- Factor 2 (DAE) was entered first, followed by Factor 3 (ASB & Impulsivity)

### Results: H3

## DAE predictive of Violent Offending independent of ASB and SUDs

- The risk of committing a violent offence increased 1.2 times for each increase of 1 in the score of Deficient Affective Experience (95% confidence interval 1.06 – 1.35)
- The score for Factor 3 did not enter the model as a significant coefficient
- A diagnosis of any SUD did not enter the model as a significant coefficient
- Hypothesis 3 can be accepted



## Discussion: Main Findings

- In this sample, a greater score on factor 2 (DAE) or factor 3 (ABS & Impulsivity) was significantly correlated with a greater number of violent crimes, and a lower age at 1<sup>st</sup> conviction for a violent crime
- However, they had distinguishable associations with frequency of violent offending and substance use disorders
- Critically, a clear association emerged between scores on DAE and the presence of violent offending that was *independent* of a lifetime history of antisocial behaviour and diagnoses of SUDs

## Discussion: The importance of DAE

- Only 2.7% (6) of the sample reached caseness on the PCL-R. However, 22% (56) of the sample scored 6, 7, or a maximum 8 on DAE
  - This alone confers an increased risk of violent criminality of approximately 8 – 10 times
- The two most widely used clinical risk assessments, the VRAG and the HCR-20 both include PCL:R/PCL:SV
- Results suggest that such a 'broad strokes' approach to psychopathy assessment may be limited in its utility in the prediction of violent offending in schizophrenia
  - Modern risk assessment items could more usefully incorporate DAE caseness estimates to enhance accuracy and function



## Discussion: The validity of DAE

- Cleckley's (1976) personality-based notion of psychopathy remains influential vs. a more operationalised definition (Cloninger, 1978)
- Does DAE contain too much value judgement and inference to be reliable and valid?
- In the face of cognitive neuro-scientific understandings of remorse/empathy and the possibilities of more objective assessments, the current derivation of the DAE item scores remains an essentially subjective task

## Discussion: The origins of DAE

- (i) Amygdala dysfunction
  - Dysfunction of the medial nucleus of the amygdala makes moral socialisation untenable
- (ii) Schizophrenia-induced abnormalities
  - Shenton et al. (2001) reviewed 193 peer reviewed MRI studies. 74% (143) included medial temporal lobe damage 59% (114) included OFC damage
- (iii) Pseudo-psychopathic schizophrenia?
  - Bender (1959); Gourevitch et al. (2005)



## Strengths... and Limitations

- Well characterised sample group
- First to attempt to tease apart the respective contributions of Factor 2 and Factor 3
- Cross-sectional study in design which forced simultaneous derivation of both exposure and outcome
- The time course of the development of DAE, its longitudinal impact upon violent offending and its potential resolution with effective treatment cannot be determined

## Future Research

- As this study is exploratory in nature it requires replication
- Questions have arisen however:
  - do scores on DAE change over time with successful treatment of positive and negative symptomatology?
  - Does DAE develop before or during the psychotic illness?
  - Is functional hypoactivation of the amygdala observable and-or specific to schizophrenic patients with high DAE scores?



## Conclusions

- The findings of the current study further develops our understanding of the heterogeneity of offenders with schizophrenia and emphasises the potential importance of the DAE factor of psychopathy in risk assessment
- These results recognise that men with schizophrenia present with a constellation of deficits, and that specific sub-groups require the development of specific interventions.

Questions...?