

# THE EFFECTS OF QUETIAPINE ON EMOTIONAL PROCESSING

PL Rock, GM Goodwin, SFB McTavish and CJ Harmer  
Department of Psychiatry, University of Oxford, UK

## Background

- ✧ Bipolar patients have been found to show impaired facial expression recognition<sup>1</sup> and negative emotional processing biases<sup>2,3</sup> during episodes of depression
- ✧ Bipolar patients have been found to show biases towards both negative<sup>2,3</sup> and positive<sup>3</sup> emotional material during periods of mania
- ✧ Quetiapine, whilst developed as an atypical antipsychotic, stabilises mood from any index episode in bipolar disorder<sup>4,5</sup>

## Aim

- ✧ To investigate the effects of one week quetiapine administration on the processing of emotional stimuli in healthy volunteers

## Participants

- ✧ 20 healthy volunteers received 150mg quetiapine XL (titrated over three nights in 50mg steps) for seven nights
- ✧ 20 matched controls received placebo (with sham titration)

## Methods

### Facial expression recognition (Day 8)

- ✧ Emotional faces (Ekman & Friesen<sup>6</sup>) were morphed with neutral faces in 10% increments and presented for 500ms
- ✧ Assessed target sensitivity and response bias<sup>7</sup> for classification of facial emotions (anger, disgust, fear, happiness, sadness, surprise)

### Attentional vigilance faces dot-probe (Day 8)

- ✧ Dot-probe presented behind one (JACFEE/JACNeuF<sup>8</sup>) face of fearful-neutral, happy-neutral, or neutral-neutral face pairs
- ✧ Assessed attentional vigilance towards fearful and happy faces in masked and unmasked conditions

### Emotional word categorisation and memory (Day 8)

- ✧ Assessed accuracy and RT of categorisation of positive and negative self-referent personality characteristics (500ms)
- ✧ Assessed immediate recall memory
- ✧ Assessed target sensitivity and response bias<sup>7</sup> for recognition of previously presented words amongst novel distractors

## Results

### Facial expression recognition

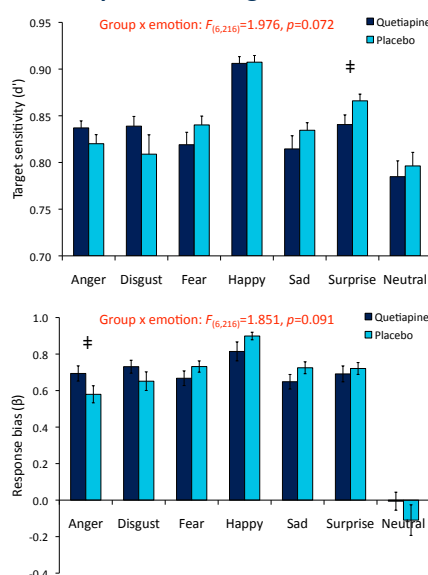


Figure 2. Target sensitivity for facial expression recognition. ✧ Quetiapine group showed a trend towards reduced target sensitivity for detection of surprised faces ( $F_{(1,36)}=3.875, p=0.057$ ).

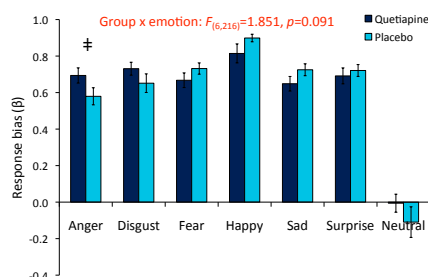


Figure 3. Response bias for facial expression recognition. ✧ Quetiapine group showed a trend towards greater response bias away from angry faces ( $F_{(1,36)}=3.875, p=0.057$ ).

### Faces dot-probe: females

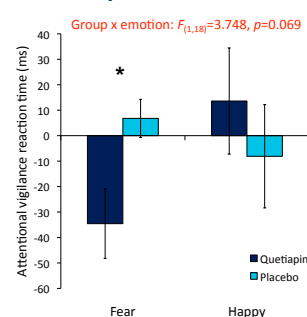


Figure 4. Attentional vigilance reaction times for female participants in the unmasked condition. ✧ Female quetiapine group showed reduced vigilance towards fearful faces ( $p=0.012$ ). Group x emotion x gender:  $F_{(1,36)}=6.611, p=0.014$ .

### Emotional word recognition

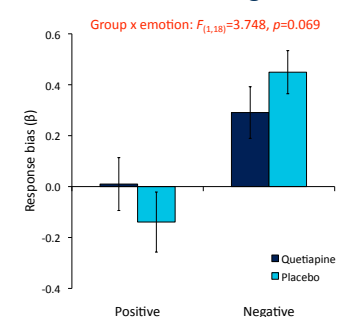


Figure 5. Response bias for emotional word recognition memory. Quetiapine group showed a trend towards greater response bias away from positive vs. negative words.

### Tasks for which there were no significant effects of quetiapine administration:

- ✧ Emotional word categorisation
- ✧ Emotional word recall memory
- ✧ Emotion-potentiated acoustic startle
- ✧ Attentional vigilance word dot-probe

## Conclusions

- ✧ Quetiapine administration was associated with emotional processing biases away from both positive and negative stimuli
- ✧ Results are consistent with a mood stabilisation effect
- ✧ Findings suggest one mechanism by which clinical effects of quetiapine may be mediated
- ✧ Further research should investigate effects in bipolar patients

## References

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