

Preattentive face detection study supports rather than refutes the attention bottleneck model of  
psychopathy

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An article by Sylvers et al (2011) claims to undermine conclusions of our recent paper (Baskin-Sommers, Curtin & Newman, 2011). However, as clarified below, their interesting findings appear to support rather than refute our conclusions.

1. **Manipulation versus Mechanism:** As predicted Baskin-Sommers and colleagues found that psychopaths displayed normal fear when instructed to focus on threat cues, but displayed deficient fear if attention was already allocated elsewhere (e.g., to goal-relevant stimuli). Sylvers and colleagues refer to our study as examining “overt attention” and attribute our psychopathy findings to “impairment in their ability to shift overt attention.” Although our manipulation involved instructions to focus on threat or alternative information (i.e., we manipulated overt attention), this was done to examine the functionality of the proposed mechanism (i.e., attention bottleneck). Consistent with models of selective attention, an attention bottleneck can reduce activation in the visual cortex and curtail perceptual processing. To the extent that a psychopathy-related attention bottleneck fosters serial processing and constrains the simultaneous processing of peripheral/complex information as we proposed, it would reduce perceptual efficiency and exacerbate the trade-off between perception and elaborative (emotion) processing. Thus, it appears that Sylvers et al. confound our manipulation and mechanism.

2. **Both Attentional and “Preattentive” Effects:** The Sylvers task used a continuous flash suppression design to assess the timing of conscious awareness of fearful versus other emotional faces. The logic of this design is that perceptual demands associated with the Mondrian images (presented in one visual field) delay face recognition (presented in the other visual field), but fear faces break this visual suppression faster than neutral faces. Because callous-unemotional traits predicted slower detection of fear and disgust faces, the authors conclude that “psychopaths’ lack of reactivity to threatening stimuli occurs preattentively, that is, preconsciously, in the absence of competing demands” and is incompatible with proposals involving overt attention. Thus, the authors claim that their findings negate the possibility that slow detection of emotion faces reflects an attention bottleneck. In fact, given their greater size (4x) and intensity (initial 100% vs. 0% for faces), and the time course of inhibition (3.45s), it seems clear that Mondrian images created strong “competing demands” on perception and attention during the so-called “preattentive” period. Like our task that presented threat-irrelevant letters prior to threat stimuli, their task established an early alternative focus (i.e., presentation of emotion-irrelevant Mondrian images before fear faces). Thus, the findings may support rather than refute our proposal that an attention bottleneck precludes processing of peripheral/competing stimuli in psychopathic individuals.

In addition to these issues, Sylvers and colleagues also fail to consider a number of factors that undermine the comparability of the two studies (e.g. 7-11 y/o children versus adult prisoners). In the interest of understanding psychopaths’ fear deficit, it would be unfortunate if unwarranted claims prevented researchers from pursuing recent evidence concerning the crucial role of attention in moderating the information processing deficits associated with psychopathy.