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Comparing multiple indirect measures of sexual interest with eye-tracking and pupil dilation

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Introduction

Indirect measures of sexual interest have attracted considerable attention over the last decade. However, progress is needed in establishing the validity of these tasks as diagnostic tools. Eye movements may provide a remarkably direct measure of sexual attention. In addition, during visual processing, observers’ pupils automatically increase in size (dilate) as arousal increases. In eye-tracking, pupil size can be recorded with millisecond timing and linked directly to the material that a person is viewing. Eye-tracking may prove useful as a assessment measure, and may also aid in strengthening the validity of existing measures and in understanding the cognitive processes involved in processing sexually appetitive material. The aim of this study was to examine the relationship between eye-tracking and indirect tasks in measuring adult sexual orientation and child molesting proclivity in a student sample.

Participants

29 University students (22 straight, 5 gay, 2 bisexual)

Measures

Eye Gaze, Pupil Dilation, and Viewing Time Tasks

• Eye gaze and pupil dilation were recorded during a free viewing task — images of adults or children on a beach shown for 10 seconds each.
• Gaze, dilation and response time were recorded in a viewing time task where participants were asked how sexually appealing images were. Viewing time images included people on a beach, images from the Not Real People image set (NRP; Laws and Gress, 2004), and a set of morphed (not real) adults (Ó Ciardha, 2010).

Pictorial Modified Stroop Task

Participants are asked to identify as quickly as possible the colour in which an image is presented. A systematic slowing down of response times to a certain blocks of image types (e.g. adult females) is interpreted as a possible indicator of (sexual) salience. Images were from the NRP and Ó Ciardha (2010) sets (also used for CRT and IAT).

Choice Reaction Time Task (CRT)

The CRT also interprets slower responses as indicative of sexual salience, but asks people to quickly identify the location of a dot superimposed on an image. While the Stroop task presented blocks of the same image category, the CRT used smaller clusters and separated children into older (Tanner 3 & 4) and younger (Tanner 1 & 2).

Implicit Association Test (IAT)

The IAT examines the speed with which images or words are categorised when certain concepts are paired (e.g. male and sexual or female and nonsexual) and compares these response times to those when opposite concepts are paired (e.g. female and nonsexual). Faster responding is interpreted as an indicator of stronger associations between paired concepts. Unusually for IAT designs we presented blocks of adult and child images within one IAT, allowing us to examine whether facilitation effects were stronger to adult or to child stimuli.

Interest in Child Molestation Scale

Along with explicit attractiveness ratings of adult and child stimuli from the viewing time task, we examined child molestation proclivity using the Interest in Child Molestation Scale (Gannon & O’Connor, 2011). This measure presents sexual offending scenarios and asks participants to rate how arousing or enjoyable they would find such a situation and whether they would have done the same. We concentrated on low-force scenarios as these had the most variability in responding.

Conclusion & Future Directions

Tasks show a high level of agreement looking at adult orientation. However, different paradigms had different strengths in exploring arousal to child stimuli and molestation proclivity. Eye-tracking and pupil dilation is clearly a potentially useful technique for the assessment of sexual interest. Future work should:

• Increase sample size for greater statistical power and to establish norms (data collection is ongoing)
• Refine eye-tracking and pupil dilation paradigms
• Use measures with an offending population
• Include comparisons with phallometry through collaboration