Brief Research Article

Do Female Child Molesters Implicitly Associate Children and Sex? A Preliminary Investigation

Theresa A. Gannon
Mariamne R. Rose
University of Kent, UK

&

Siân E. Williams
University of Brighton, UK

This is a preprint of an Article submitted for consideration in Journal of Sexual Aggression © 2009 Taylor & Francis; Journal of Sexual Aggression is available online at: http://www.informaworld.com/

Please cite this article as:
Abstract

A number of studies using the Implicit Association Test have successfully shown that male child molesters hold cognitive associations between children and sexual concepts. The results of such studies appear to indicate that male child molesters hold core cognitive associations that play some part in facilitating and/or maintaining sexual advances towards children. Given the relative success of the Implicit Association Test with male child molesters, we used this test with 17 female child molesters. The results showed that female child molesters did not differ from non sexual offending females on the Implicit Association Test. In fact, female child molesters appeared more likely to associate adults with sexual concepts rather than children with sexual concepts. We discuss these findings in relation to current assessment and treatment with female child molesters.

Keywords: Implicit association test; Female child molesters; Cognition
Do Female Child Molesters Implicitly Associate Children and Sex? A Preliminary Investigation

It would not be an exaggeration to argue that the Implicit Association Task devised by Tony Greenwald and his colleagues (IAT; Greenwald, McGhee, & Schwartz, 1998) is one of the best known, and most reliable measurements of implicit cognition to date. In short, the IAT provides a latency based measure of the strength of conceptual associations held in long term memory and studies using the IAT have highlighted its use in measuring socially sensitive beliefs such as racial prejudice and other forms of stereotyping (Dasgupta, McGhee, Greenwald, & Banaji, 2000; Greenwald & Banaji, 2000). Given the success of the IAT, it is perhaps unsurprising to learn that it has been adapted for use with forensic populations, and more specifically sexual offenders.

A number of studies have now been able to demonstrate—using relatively small samples—that male child molesters show an implicit association between children and sexual concepts (Gray, Brown, MacCulloch, Smith, & Snowden, 2005; Mihailides, Devilly, & Ward, 2004; Nunes, Firestone, & Baldwin, 2007). For example, Gray et al. (2005) asked 19 male molesters to complete an IAT in which they were instructed to rapidly sort words into categories organised to reflect unusual cognitive associations between children and sex (i.e., Adult-Non Sex versus Child-Sex) or categories designed to reflect usual cognitive associations between adults and sex (i.e., Adult-Sex versus Child-Non Sex). The results showed that male molesters—relative to male offender controls—found it easier to sort words in the unusual condition as evidenced by accelerated reaction times in this condition relative to the usual condition. Similar results using the IAT with male molesters have been reported by Mihailides et al., (2004) and Nunes et al. (2007). Such IAT findings with male child molesters are useful since they catalogue abnormal cognitive associations that appear to motivate molestation both reliably and independently from social desirability bias (Gray et al., 2005; Schnabel, Asendorpf, & Greenwald, 2007).
Female Child Molesters

In comparison, very little is known about female child molesters’ cognitions, and what exists is relatively preliminary. Some clinical reports have noted a tendency for female child molesters to argue that their victim was culpable, or sexually motivated (Green & Kaplan, 1994; Saradjian, 1996). In the most recent, and perhaps most comprehensive study of female child molesters’ cognitions, Beech, Parrett, Ward, and Fisher (in press) interviewed 15 British incarcerated female child molesters about their immediate thoughts prior to, at the time of, and post offence. In this study, just under half of the female child molesters articulated accounts that contained evidence of them viewing their victims as older, sexually attractive, or sexually responsive to the abuse (47%; \( n = 7 \)). Beech et al. (in press) concluded from this that female child molesters hold implicit cognitions that sexualise children. However, a key limitation of this study is the sole-reliance on self-reports that are likely to have been tainted by social desirability bias (e.g., justifying one’s behaviour by arguing that the child was sexually aware and/or flirtatious). Furthermore, conversely, a number of key professionals have observed—clinically—that female child molesters are less likely to be characterised by motivations and cognitions relating to the sexualisation of children (Nathan & Ward, 2001; Wakefield & Underwager, 1991); a standpoint seemingly at odds with Beech et al.’s (in press) findings.

The main aim of our study was to conduct the first test of the implicit cognitive associations of female child molesters. In particular, we wanted to establish whether female child molesters—like their male counterparts—could be discriminated from non-molesting controls on a Child-Adult IAT in which the categories of child and adult are associated with two attributes (sex and non-sex concepts).

Method

Participants
Participants ($N = 34$) were recruited from five female prisons and one probation service in England. Of the overall sample, 17 had committed sexual offences against children (female child molesters; FCMs), and 17 had committed a range of other offences but had never been convicted of a sexual offence against a child (female controls; FCs). FCMs were relatively mature women ($M = 40.2$ years, $SD = 12.8$) who had abused, on average, 2 child victims ($SD = .83$). Just under half of the FCM women ($47\%, n = 8$) had abused pre-pubescent children ($\leq 11$ years), $41\%$ ($n = 7$) had abused older children ($\leq 12$ years), and for two participants this information was missing. The majority of women had abused in the company of a male co-defendant ($65\%, n = 11$) while the remainder had abused either alone ($30\%, n = 5$), or as part of a wider group ($5\%, n = 1$). FCMs’ estimated IQ scores (measured via the Wechsler Abbreviated Scale of Intelligence™, Psychological Corporation, 1999) were average ($M = 97.5$, $SD = 18.9$), and they were serving lengthy prison terms ($M = 5.6$ years, $SD = 1.1$). FCM and FC groups were matched on age, estimated IQ, and length of prison sentence. FCMs and FCs also had extensive experiences of sexual abuse ($75\%$ of FCMs [$n = 12$] and $47\%$ of FCs [$n = 7$] reported at least one sexually abusive experience), $X^2 (1, N = 31^1) = .15$, $ns$ that had lasted, on average, $5.32$ years ($SD = 3.3$ years). No participant was experiencing active mental health problems and all women gave written informed consent to partake in the experiment and for the researchers to check their file history. All but one of the FCMs recruited for this study participated in further cognitive-experimental research reported in Gannon and Rose (2008).

Stimuli and Materials

Two main IATs were developed in line with Greenwald et al's (1998) 7-phase methodological protocol: a flower-insect IAT (hereafter referred to as the control IAT) and a sexualisation of children IAT (hereafter referred to as the experimental IAT).

---

1 For three participants (1FCM and 2 FCs) this information was missing.
Female Child Molesters

All stimuli were presented by a Gateway Solo 9300 portable computer which recorded all responses and reaction times (RTs) via a PST serial response box. Word stimuli were presented in white Times pt 14 font on a black background.

Control IAT: Flowers and Insects

In this task, two categories (namely Flowers and Insects) were associated with two attributes (Pleasant and Unpleasant). Twenty words were used in this task: 5 flower words (e.g., Rose), 5 insect words (e.g., Cockroach), 5 unpleasant words (e.g., Cancer), and 5 pleasant words (e.g., Health). The majority of these words were selected from Gray et al. (2005; see Appendix for word lists). In Step 1, participants were asked to sort the flower and insect words into their respective category labels (Flower or Insect) using a left or right button press. Similarly, in Step 2, participants were asked to sort the pleasant and unpleasant words into their respective attribute labels (i.e., Pleasant or Unpleasant). In Step 3, the category and attribute labels were combined for the first time. Here, participants were asked to sort all of the 20 randomly presented words into one of two combined categories. For half of the participants (Set A), the category and attribute pairings were combined in a usual or belief congruent manner (e.g., one button press was assigned to Flower and Pleasant words and the other was assigned to Insect and Unpleasant words). For Set B participants, the category and attribute pairings were combined in an unusual or belief incongruent manner (e.g., one button press assigned to Flower and Unpleasant words and the other to Insect and Pleasant words). In Phase 4, a lengthier re-presentation of Phase 3 was delivered consisting of 40 trials (i.e., each of the 20 words was presented twice). In Phase 5, participants were asked to repeat Phase 1 (i.e., sorting the flower and insect words into their respective categories) but using reverse button assignment to alleviate handedness confounds. This reverse button assignment was then used for the remainder of the task. In Step 6, Set A and B participants received the opposite category and attribute pairings to those presented in Steps 3 and 4 (i.e., unusual belief incongruent pairings for Set A and usual belief
Female Child Molesters

congruent pairings for Set B). Finally, in Step 7, a lengthier re-presentation of Step 6 was delivered consisting of 40 trials.

Experimental Task: Child and Adult

In this task, two categories (namely Child and Adult) were associated with two attributes (Sex and Non-Sex). Twenty words were used in this task: 5 child words (e.g., School), 5 adult words (e.g., Mortgage), 5 sex words (e.g., Climax), and 5 non-sex words (e.g., Elbow). Words were selected from those presented by Gray et al. (2005) to ensure they were relevant for a forensic population (see Appendix for word lists). All of the steps involved in this IAT mirrored those outlined in the control IAT whereby Child and Adult categories replaced the Flower and Insect Categories, and Sex and Non-Sex replaced the Pleasant and Unpleasant attributes. Thus, Child-Sex versus Adult-Non Sex represented the unusual condition and Adult-Sex versus Child-non Sex represented the usual condition.

Procedure

Prior to experimental testing, participants were required to complete a short demographic interview and an estimate of IQ using the WASI. Following this, participants were required to complete each of the IATs outlined above in counterbalanced order. Participants were instructed to proceed with each stage as quickly as possible without making errors; inter trial interval was set at 250ms. For each trial, a word appeared on the screen that the participant was instructed to categorise. The word remained visible until the participant responded. If the response was incorrect the word “ERROR” appeared in red. Participants were required to press the correct button before commencement of the following trial (this is the error correction method as suggested by the IAT test developers; Lane, Banaji, Nosek, & Greenwald, 2007). The researcher sat near to the participant while they completed each task to ensure that each participant engaged with the task, and to rectify any problems or misunderstandings between stages. Participants were fully debriefed, in writing, following completion of data collection.
Results

Participants’ relative reaction times across the Usual and Unusual belief tasks were transformed into an individual effect size difference ($D$) in accordance with Greenwald, Nosek, and Banaji’s (2003) IAT scoring recommendations. This transformation reduces the effect of (i) individual reaction time variation across participants, and (ii) the ordering of the Unusual and Usual belief tasks. Individual $D$ scores may range from -2.0 to +2.0 with positive $D$ scores indicating accelerated performance in the Usual belief task relative to the Unusual belief task, and negative $D$ scores indicating accelerated performance in the Unusual belief task relative to the Usual belief task.

Control IAT: Flowers and Insects

Using $D$ scores obtained from the Flowers-Insects IAT as the dependent variable, we conducted a two-way between subjects analysis of variance with Group (FCM or FC) and Order (Usual Task first or Unusual Task first) as the between subjects factors. As anticipated, there was no significant main effect of Group, $F(1,30) = 2.42, ns$, 95% CI = -.36 ≤ µ₁ - µ₂ ≥ .12 illustrating that FCMs and FCs both automatically characterised positive attributes to flowers and negative attributes to insects (FCM $M = .67$, $SE = .07$; FC $M = .84$, $SE = .08$). As commonly noted in IAT tasks, there was a main effect of task Order, $F(1, 30) = 7.60, p < .010$, showing that participants from both groups who completed the Usual belief task first tended to demonstrate more positive $D$ scores. This order effect was not, however, qualified by a significant Group x Order interaction ($F<1$).

Experimental IAT: Child and Adult

We repeated the two-way analysis of variance using $D$ scores obtained from the Child-Adult IAT as the dependent variable. Interestingly, FCMs and FCs both showed positive $D$ score patterns (FCM $M = .27$, $SE = .07$; FC $M = .36$, $SE = .07$) illustrating that both groups performed relatively faster on the Usual belief task (in
which adult was paired with sex attributes) relative to the Unusual belief task (in
which child was paired with sex concepts). Furthermore, FCM and FC groups did not
significantly differ on these positive $D$ score patterns, $F(1,30) = .79, ns, 95\% CI = -.26$
$\leq \mu_1 - \mu_2 \geq .26$. Once again, an effect of task order was detected, $F(1,30)= 22.91, p <
.001$ whereby participants from both groups who completed the Usual belief task first
tended to demonstrate more positive $D$ scores. This order effect was not, however,
qualified by a significant Group x Order interaction ($F<1$).

To investigate whether FCMs who abused only pre-pubescent children might
show a different pattern of $D$ scores, we reanalysed the data excluding FCMs who had
abused older children (leaving a total $n$ of 8 FCMs who had abused prepubescent
children). We found exactly the same pattern of results outlined above\(^2\). In other
words, those who abused pre-pubescent children appeared to exhibit patterns of
usual responding on the IAT. Finally, re-analysing our data with age and IQ
identified as covariates did not alter the pattern or statistical significance of our
overall findings.

**Discussion**

The main aim of our research was to establish whether a small group of
female child molesters would—like male molesters—implicitly associate children and
sexual concepts on a Child-Adult IAT. Interestingly, we were unable to discriminate
female child molesters from non-molesting females on the Child-Adult IAT. In other
words, the results did not support the suggestion that female child molesters
cognitively sexualise children as has commonly been reported in male child molesters
(Gray et al., 2005; Mihailides et al., 2004; Nunes et al., 2007). Our pattern of results
remained unchanged when we co-varied out the effects of age and estimated IQ, and
when we restricted our analysis to only those females who had abused prepubescent
children ($n = 8$). Furthermore, both female child molesters and controls behaved

\(^2\) We also investigated whether there were any discernable $D$ score differences between those FCMs
who had abused children in the presence of a partner and those who had offended alone, but found no
obvious differences.
Female Child Molesters

exactly as hypothesised on the control IAT task, which measured the relatively
innocuous cognitive associations of insects and flowers.

The results of this preliminary study appear to empirically support prevailing
clinical contentions that female molesters generally hold little sexual interest in
children (Green & Kaplan, 1994; Saradjian, 1996) and do not hold unusual cognitive
associations between children and sex. Notably, however, our results do not concur
with Beech et al. (in press) whose interview study suggested that almost half of their
FCMs (47%; n = 7) held sexualised beliefs about children. One possible reason for
this difference is the different measurements used across studies. Beech et al.
categorised females who spoke about their victims in a sexual way as holding a
schema relating to the sexualisation of children. However, given that these females
were talking only about their own victims it is probable that females may not
generally believe that children are sexual, but may come to convince themselves that
their own particular victim was sexually interested in them. If this contention were
correct, we would not expect to find evidence of generic and unusual cognitive
associations between sex and children on the IAT.

Our study is one of the first to assess FCMs’ cognitive structures
automatically, minimising the faking often inherent in self report methodologies. Our
finding may be important since, at present, the empirical database supporting
treatment for female molesters is based solely upon adaptation of theory and
research regarding male child molesters. Thus, while professionals may intuitively
“feel” that females may generally depart from males in terms of children and sexual
cognitions, such professionals may persist with work on these issues “just in case”,
decreasing female’s trust and motivation to partake in treatment.

The results of our study should be viewed as preliminary. Because only 45
female sexual offenders were incarcerated in British prisons at the time of our study
(45 by December 2007; National Offender Management Service, 2007), we were only
able to gain a small sample size. Nevertheless, IAT studies with male molesters have
used similarly small samples of molesters and have found clear evidence of child-sex associations as evidenced by accelerated reaction time in the unusual belief condition relative to the usual belief condition (Gray et al., 2005). The female molesters and controls recruited for our study both showed extremely positive $D$ scores illustrating that both groups had consistently performed faster in the usual belief task (in which child and non-sex categories were paired) relative to the unusual belief task (in which child and sex concepts were paired). In other words, the female molesters did not appear to show a qualitatively different trend in responding that failed to reach statistical significance. It is likely, however, that the small number of female molesters who offended alone impeded our ability to detect any potential significant differences. If possible, future researchers attempting to use the IAT with female molesters should target females who fit more of a paedophilic profile. That is, females who work alone, and whose predominant sexual interest is in children. While this would be an extremely difficult task given the numbers of females incarcerated for child molestation, it may provide further empirical evidence that is much needed to inform evidence-based practice with female child molesters.
References


# Appendix: Word Lists

## Control IAT

<table>
<thead>
<tr>
<th>Flower Words</th>
<th>Insect Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buttercup</td>
<td>Ant</td>
</tr>
<tr>
<td>Rose</td>
<td>Cockroach</td>
</tr>
<tr>
<td>Poppy</td>
<td>Flea</td>
</tr>
<tr>
<td>Bluebell</td>
<td>Beetle</td>
</tr>
<tr>
<td>Daisy</td>
<td>Wasp</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pleasant Words</th>
<th>Unpleasant Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Disaster</td>
</tr>
<tr>
<td>Lucky</td>
<td>Rotten</td>
</tr>
<tr>
<td>Happy</td>
<td>Ugly</td>
</tr>
<tr>
<td>Peace</td>
<td>Vomit</td>
</tr>
<tr>
<td>Pleasure</td>
<td>Cancer</td>
</tr>
</tbody>
</table>

## Experimental IAT

<table>
<thead>
<tr>
<th>Adult Words</th>
<th>Child Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortgage</td>
<td>Kid</td>
</tr>
<tr>
<td>Office</td>
<td>Toys</td>
</tr>
<tr>
<td>Work</td>
<td>Youngster</td>
</tr>
<tr>
<td>Mature</td>
<td>Playground</td>
</tr>
<tr>
<td>Marriage</td>
<td>School</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex Words</th>
<th>Non-Sex Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cock</td>
<td>Run</td>
</tr>
<tr>
<td>Lust</td>
<td>Elbow</td>
</tr>
<tr>
<td>Climax</td>
<td>Smile</td>
</tr>
<tr>
<td>Breasts</td>
<td>Eye</td>
</tr>
<tr>
<td>Snog</td>
<td>Toe</td>
</tr>
</tbody>
</table>
Acknowledgments
We would like to thank HM Prison Service and Kent Probation Service for supporting participant access. We also thank Caroline Stewart, Barbara Treen, Natalie Parrett, Leslie Turner, Francis Hilleard, Sue Simpkins, Laura McCraw, Claire Harrington, Patricia Young, Milli Dave, Maggie Alexander, and Tania Muller for support, and Keith Franklin for his immense technical support. This study was supported by a grant from the Economic and Social Research Council; grant number RES-000-22-1880 awarded to the first author. The views reflected in this manuscript do not necessarily reflect those of HM Prison Service.