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Title: Two more things for consideration: Sexual orientation and conduct disorder

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Abstract:

We add to Archer's review with mention of sexual orientation differences in aggression and empathy, which suggest a biological basis for the mediating role of empathy. We also note that Archer's view of sex differences will illuminate discussion of conduct disorder which can only be of help to researchers in this field.

Main text:

As Archer has made clear, intrasexual competition among males is a consequence of operational sex ratios (OSR). Male gametes are more numerous and cheaper to produce than those of females and in many species paternal care is relatively low. This leads to a situation where there are more reproductively available males than females, and females are thus a scarce resource to be striven for and consequently males enter into competition with one another. Those males with

heritable traits that enable competitive success reproduce more and those traits go to fixation. The literature abounds with examples of male phenotypes designed for aggressive display and combat, and these dimorphisms are the consequence of this intrasexual selection. Although Archer is asking whether sexual selection accounts for sex differences in aggression he is really adding to the evidence for sexual selection in his detailed overview of this literature. We should like to add two more considerations to the discussion.

One line of enquiry that Archer does not pursue is that of the influence of sexual orientation on aggression. Organizational hormones, important in the process of sexual differentiation, are strongly implicated in the aetiology of male homosexuality. Specifically, the regime of organizational hormones appears to be different in homosexual compared with heterosexual males. These hormones are thought to alter a number of behaviours, somatic features and cognitive dispositions, including sexual preference (see Wilson & Rahman, 2005). A number of studies have now also drawn a tentative link between the actions of these organizational hormones and the levels of physical aggression displayed by individuals (Bailey & Hurd, 2005; Berenbaum & Resnick 1997; Fink et al., 2006; Pasterski et al. 2007)

Sergeant, Dickins, Davies and Griffiths (2006) and Dickins and Sergeant (2008) have recently tested specific hypotheses about homosexual male aggression at an individual level and the coalitional psychology underpinning group-level aggression. Both papers report that homosexual males display significantly lower levels of physical aggression than heterosexual males. No differences were recorded in either study for sexual orientation-related differences in verbal aggression, anger, hostility or several forms of indirect or relational aggression. These findings are in accord with the sex differences described by Archer. Furthermore, both papers documented significantly higher levels of empathy among homosexual males compared to heterosexual males. Empathy is identified by Archer as possible mediator of aggression, associated with the 'biosocial' approach (Bettencourt & Miller 1996; Eagly & Steffen 1986), and as being reduced among women through the administration of exogenous testosterone (Hermas et al., 2006). Interestingly, the levels of empathy displayed by individuals have been tentatively linked to organizational hormone exposure (Knickmeyer et al., 2005). Thus, there appears to be a relationship not only between organizational hormones, sexual orientation and the process of sexual differentiation, but also between levels of physical aggression and empathy.

Although Archer clearly talks about less than desirable traits in his paper he does not mention disorders associated with aggression. For the most part this is unsurprising, for dysfunction is not the focus of his argument. However, conduct disorder might be an exception to this. The DSM-IV describes conduct disorder as “a repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated” (DSM-IV Diagnostic Criteria 312.8). To be diagnosed with conduct disorder a person must exhibit three or more behaviours from a list of fifteen over the last year, with at least one in the past six months. Seven of these behaviours are aggressive and include intimidation, physical fights and sexual coercion.

Males are two-and-a-half times more likely to have conduct disorder than females. Meltzer et al. (2000), in a survey of the mental health of children and adolescents (from 5 to 15 years old) in Great Britain, reported that conduct disorder was overrepresented in low socioeconomic status boys between 11 and 15 years of age. It is not unreasonable to assume that low socioeconomic status boys are under-resourced and face more risks than wealthier boys. Given that they are entering sexual maturity from some point after 11 years, and their endocrine profile is changing accordingly, the full impact of their local OSR will begin to be felt. As Archer has noted, males from such backgrounds are more likely to be heavy future discounters and more prone to aggressive conflict, irrespective of a conduct disorder diagnosis (Wilson & Daly, 1997). Finally, it is worth noting that girls with conduct disorder have higher levels of free testosterone (Pajer et al., 2006) and are more likely to have precocious menarche (Burt et al., 2006). Early menarche is also associated with high risk environments, lower socioeconomic status and early fertility (Belsky, Steinberg & Draper, 1991; Chisholm, 1999; Dickins, 2006). As Clutton-Brock (2007) notes, in a recent discussion of advances in sexual selection theory, females of some species do compete aggressively for breeding opportunities and they can exhibit more masculine anatomical, physiological and behavioural profiles. This kind of female competition can emerge, even when the OSR is as discussed by Archer.

Taking sexual selection seriously, as Archer does, thus provides us with a possible research programme with regard to conduct disorder. It would be of great value to collect data on the local ecologies in which conduct disorder arises, tracking resources and OSR as well as fertility profiles. The relationship between early fertility, or teenage pregnancy, and male aggression is well known (Wilson &

Daly, 1997) but sexual selection theory should throw new light on the facultative psychology underpinning these patterns.

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