An Empirical Test of the Kin Selection Hypothesis for Male Homosexuality

Qazi Rahman, Ph.D.1,2 and Matthew S. Hull, B.Sc.1

INTRODUCTION

Homosexuality has long posed a problem for evolutionary biology, with several theoretical and statistical-modelling attempts at explanation (McKnight, 1997; Rahman & Wilson, 2003). Often these have been side interests for many researchers in the area with little in the way of empirical testing. A serious empirical consideration is required as the available evidence shows that male homosexuality is associated with reduced fitness rates in terms of reproductive output—gay men have children at about 20% the rate of heterosexual men (Bell & Weinberg, 1978; Saghir & Robins, 1973), yet homosexuality is also substantially heritable (e.g., Bailey, Dunne, & Martin, 2000; see Rahman & Wilson, 2003 for review) and may have specific genetic loci (Hamer, Hu, Magnuson, Hu, & Pattatucci, 1993; Hu et al., 1995; cf. Rice, Anderson, Risch, & Ebers, 1999).

By far, the most persistent theory regarding the evolution of homosexuality is the kin selection hypothesis, based on the notion of inclusive fitness. Inclusive fitness refers to an individual’s “total reproductive fitness” which is the sum of his/her indirect fitness, due to reproduction by relatives as a consequence of his/her own actions, and direct fitness, due to his/her own reproduction. The theory originates from Wilson (1975, 1978), who proposed that homosexual males, freed from the need to expend energy on direct reproduction, may have helped their siblings in ancestral environments reproduce more successfully and increase the viability of their offspring (their nieces and nephews) by resource provision or child care and protection. Therefore, homosexuals as “non-reproducers” contribute to the overall indirect fitness. As families with such homosexual members would gain “special” reproductive advantages in this way (in comparison to families without homosexuals), genes for homosexuality may have been replicated indirectly through sibling lineages.

Similar to Wilson’s suggestion that homosexuals aided siblings through direct help (in terms of hunting, domestic help, and defence), Ruse (1982) and Weinrich (1976) argued that the advantage of having a homosexual family member comes from sharing of resources but also through socially beneficial influences in highly stratified ancestral societies (as well as partaking in roles such as child care). They suggested that evidence from historical and anthropological examples demonstrate that some
homosexual men may have been accorded influential and altruistic roles, such as priests or shamans. Prominence in such roles would have accrued valuable resources which were channelled towards kin.

One study that is often cited as supportive of the kin selection hypothesis is that of Salais and Fischer (1995), who reported that homosexual men were more empathic than heterosexual men. They maintained that because empathy and altruism are linked they support the altruistic components of the kin selection hypothesis. However, the study’s sample consisted of volunteers drawn from a religious organization (thus possibly being preferentially altruistic at the outset), while increased altruism among homosexual men may be due to other sexual orientation related personality differences, such as elevated psychological femininity (Lippa, 2000, 2002).

As Bobrow and Bailey (2001) noted, whether generalized altruism is related to kin-specific altruism is unclear.

It is clear from above that the kin selection theory has not been subject to rigorous empirical testing. In fact, the theory has been heavily criticized by several authors (see Buss, 1994; Dickemann, 1995; Kirkpatrick, 2000; McKnight, 1997; Muscarella, 2000; Rahman & Wilson, 2003). There are two major conceptual problems with the theory. Firstly, the advantage of having homosexual family members would need to be very large to offset the lack of direct reproduction; the genes for homosexuality would have to show high penetrance, which is unlikely (Hamer & Copeland, 1994; Rahman & Wilson, 2003). Secondly, homosexuality appears as a poor solution for collateral nepotism (e.g., that seen in asexual worker castes in some insect species) because homosexuals naturally expend energy on pursuing non-reproductive sex rather than assisting kin (Bobrow & Bailey, 2001). Ruse (1982) and Weinrich’s (1976) assertions are not compelling either as the available anthropological evidence is inconclusive and begs the question of why high status roles would be provided to non-reproducing homosexuals rather than to reproductively successful “alpha-type” heterosexual males (Kirkpatrick, 2000). The familial ostracism experienced by many homosexuals also runs counter to the hypothesis.

In light of these conceptual difficulties and lack of supporting evidence, Bobrow and Bailey (2001) provided the first robust test of the theory on the basis that homosexuality would show “special design” features if it were an adaptation due to kin selection. They predicted that there should be clear and measurable positive motivation to aid kin (including differential channelling of financial, social, and emotional resources relative to heterosexual men). They found no preferential channelling of such resources (measured via survey responses) by homosexual (n = 66) compared to heterosexual men (n = 57; who, in fact, tended to provide more resources to siblings) in a modest community sample.

The present study aimed to replicate that of Bobrow and Bailey in a different population (a United Kingdom community sample) that included several important refinements. As levels of personal income are an obvious moderating variable for differential resource channelling, questionnaire items were included which evaluated this. The number of siblings and their children (the nieces and nephews of the participants) were also measured. This permitted an examination of sibling sex composition and birth order given that homosexual men are born later in their sib-ships and have an excess of older brothers (Blanchard, 1997). It could be argued that familial resources may have already been invested in older brothers, thus lowering the cost of non-reproduction for the younger boys who become homosexual (Bobrow & Bailey, 2001). The tendency for homosexual men to be more psychologically feminine (Bailey, 2003; Lippa, 2000, 2002), and thus possibly more feminine in levels of nurturance, was also examined using two measures (psychological gender and interest in children) as these may affect motivations to help kin. Based on indirect fitness differentials, the kin selection hypothesis predicts that homosexual men should show greater motivational and actual channelling of resources (financial and emotional) towards their siblings and siblings’ children compared to heterosexual men.

**METHOD**

**Participants**

Sixty heterosexual men and 60 homosexual men (age range, 18–36 years) participated in the study. Both groups were recruited from university sources (students attending the University of East London, local community (East London and Essex areas), and through social networks. Gay men were additionally recruited via opportunistic sampling at recognized gay districts in London (e.g., Soho). All participants came from London (primarily East London) and South-East regions of England (e.g., Essex and Kent). Participants’ sexual orientation was assessed using two 7-point Kinsey scale items (sexual feelings and sexual behavior over the past 12 months) ranging from 0 (“exclusively heterosexual”) to 6 (“exclusively homosexual”) (Kinsey, Pomeroy, & Martin, 1948) and one categorical item about self-identification as either “homosexual/gay,” “heterosexual/straight,” or “bisexual.” Only participants who checked “homosexual/gay” or