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# Is male homosexuality maintained via kin selection?

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### Abstract

We tested the kin selection hypothesis of male homosexuality using questionnaire data in a community sample of homosexual and heterosexual men. Homosexual men were no more likely than heterosexual men to channel resources toward family members. Indeed, heterosexual men tended to give more financial resources to siblings than homosexual men. Furthermore, homosexual men were somewhat more estranged from family members, especially from fathers and oldest siblings. © 2001 Elsevier Science Inc. All rights reserved.

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### 1. Introduction

Homosexuality is a paradox for evolutionary theory. Empirical studies have found a relatively low rate of direct reproduction by homosexual men (Bell & Weinberg, 1978; Curran & Parr, 1957; Parr, 1957; Saghir & Robins, 1973). The persistence of a trait that drastically lowers fertility requires explanation. The evolutionary paradox is compounded by studies suggesting that at least a portion of the variance in sexual orientation can be accounted for by heredity (Bailey, Dunne, & Martin, 2000; Bailey & Pillard, 1991).

Several sociobiological models have been proposed to explain homosexuality, although little data have been collected to test them. This paper describes the kin selection or inclusive fitness hypothesis, and then presents data relevant to testing the hypothesis.

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## **2. Kin selection hypothesis**

Wilson (1975), attributing the theory to Trivers and Spieth, first hypothesized that homosexual men reproduce not directly, but indirectly, through aid given to relatives. He likened this to the “sterile caste” in insects; adults who were freed from the need to expend energy on direct reproduction channel resources toward their kin, giving their families a special advantage.

In an elaboration of the hypothesis, Ruse (1982) and Weinrich (1976) suggested that in evolutionary history, gay men tended to incur a low cost for nonreproduction, or provide high benefit to their kin, or both. Males who will be unsuccessful reproductively have less to lose by having a homosexual orientation. Both Weinrich and Ruse mentioned data suggesting that males who will become gay may have poor mating prospects from early on. For example, Weinrich asserted that homosexual individuals in preindustrial societies often had undergone some kind of trauma in childhood, causing physical deformities that would limit their potential for direct reproductive success. They usually had gender atypical characteristics from an early age, which might detract from their success in intrasexual competition. Ruse noted data that homosexual men tend to be smaller in weight, with less muscle/bone development compared with heterosexual men. This would also make them less successful in reproductive competition.

Wilson (1975) speculated that homosexual individuals benefited their kin by acting as hunting or domestic helpers. Ruse (1982) and Weinrich (1976) theorized that benefit might accrue to kin through sharing of income, bequeathing of wealth after death, or helping with child rearing. They cited examples from primitive societies in which gay men have taken altruistic or high prestige roles, such as shaman or priests, which accorded them special influence or wealth. They proposed that in modern societies gay men may achieve prominent or valued roles such as the priesthood, thus bringing benefit to their kin.

Two additional phenomena may be consistent with a kin selection hypothesis: associations between male homosexuality and both birth order and empathy. Gay children tend to be later in birth order, and have a disproportionate number of older brothers (Blanchard, 1997). Under these circumstances, many of the family’s resources may already have been invested in the older brothers. These factors might also lower the cost of nonreproduction for younger, prehomosexual brothers.

Salais and Fischer (1995) found that homosexual men were more empathic than heterosexual men. Because empathy and altruism have been correlated in some studies, they claimed support for the kin selection hypothesis. This remains one of the few studies that have tested any aspects of the model. However, two concerns diminish the study’s support for the hypothesis. First, the homosexual sample in the study was largely obtained from a religious group, which may account for the increased altruism. Second, it is unclear whether general altruism is associated with increased altruism toward kin.

The kin selection theory has been criticized by several recent authors. Many have discarded the theory as a viable evolutionary model, either because of constructional problems (Dickemann, 1995; Kirkpatrick, 2000) or lack of supporting evidence (Buss, 1994; Muscarella, 2000; Small, 1995; Wright, 1994). We would highlight several problems

with the construction of the hypothesis. First, the degree of altruism toward kin required to offset the loss of direct reproduction would have to be extremely large (Cochran, 1999; McKnight, 1997). Second, in contemporary societies, it does not appear that homosexual men are given special roles or privileges that would allow them to confer considerable benefits to kin. Third, homosexuality seems “poorly designed” for its putative function of collateral nepotism. “Well-designed” collateral nepotists, such as sterile worker insects, are *asexual*. The amount of time and effort that homosexual men spend pursuing nonreproductive sex and relationships must be at the expense of distributing resources toward kin.

Given that the kin selection hypothesis was first mentioned at least 25 years ago, its empirical support is disappointing. At least one subsidiary hypothesis is both a direct consequence of the model and highly testable: homosexual men should be especially inclined to confer benefits to kin. If homosexuality is an adaptation molded by kin selection, it should show “special design” (Williams, 1966): specificity, efficiency, and economy for producing a particular beneficial effect (the “function” of the trait). We would expect them to display obvious and measurable increased motivation to help kin.

In this study, we compared homosexual and heterosexual men’s tendencies to channel financial, emotional, and social resources toward family members in general, and siblings, nieces, and nephews in particular. Evidence that homosexual men channel more resources toward their families than heterosexuals is required to support the kin selection hypothesis.

### 3. Method

#### 3.1. Subjects

Heterosexual subjects were recruited using advertisements in a free urban alternative publication. The advertisements stated that heterosexual males or females aged 20–40 were desired for a study of personality, cognitive abilities, interests, and sexual behavior. (Females were part of a different study.) Homosexual subjects were recruited using nearly identical advertisements in gay publications. The final sample included 57 heterosexual and 66 homosexual men. Subjects were paid a nominal fee. Subjects were classified according to their self-identification as “gay” or “heterosexual,” as well as reported Kinsey scores (Kinsey, Pomeroy, & Martin, 1948) for both fantasy and behavior. The Kinsey scale ranges from 0 (*completely heterosexual*) to 6 (*completely homosexual*). Mean Kinsey scores (average of present sexual fantasy and behavior) were 5.6 (S.D.=0.9) for homosexual men and 0.1 (S.D.=0.1) for heterosexual men, confirming that the two groups were extremely different in their sexual feelings and behavior. The two groups did not differ significantly with respect to age ( $t=0.56$ ,  $P=.58$ ), education (tested with Mann–Whitney  $U$ ,  $z=-0.60$ ,  $P=.55$ ), or ethnicity ( $\chi^2=1.10$ ,  $P=.59$ ). Mean ages for homosexual and heterosexual groups were 29.3 (S.D.=5.7) and 28.6 (S.D.=6.4), respectively. Median educational levels were 14.98 (S.D.=2.5) and 15.04 (S.D.=1.9) years, respectively. The two groups were 73.5% and 70.4% Caucasian, respectively.

### 3.2. Measures

Subjects each completed a six-page questionnaire designed by the authors. In most cases, responses were given in a seven-point rating-scale format, from “Strongly Agree” to “Strongly Disagree.” The questionnaire included the following Family Relationship Scales:

1. *General Affinity*. This scale measured the subject’s general feelings of closeness to their family. It included items such as: “My family is very important to me,” “I feel close to my family,” and “I feel estranged from or antagonistic toward my family.”
2. *Generosity; Willingness to Give*. This scale measured the subject’s willingness to give resources, both financial and emotional, to members of their family. Typical items were: “I have often loaned money to my siblings,” “My family looks to me for emotional support,” and “I would undergo a serious operation if it could possibly help a family member.”
3. *Neediness; Willingness to Receive*. This scale measured the extent to which subjects received resources, both financial and emotional, from members of their family. Typical items were: “My family has helped me financially when I needed assistance,” “Family members have helped me find work in the past,” “My siblings would let me live with them if I needed to,” and “My family has given me emotional support during times of stress.”
4. *Avuncular Tendencies*. This scale measured the subject’s theoretical willingness to channel resources toward nieces and nephews, including gifts, monetary support, and help with childcare. Sample items asked subjects about their willingness to babysit on a regular basis, contribute money for daycare, medical expenses, and education.

#### 3.2.1. Open-ended questions about specific relatives

In addition to these scales, subjects were asked specific questions pertaining to their relationships with mothers, fathers, and oldest and youngest siblings, in a fill-in-the blank format. These questions included: distance in miles that they live from each, frequency of contact (by phone or in person) over the past month, and flow of monetary resources to and from each relative over the past year. Subjects were also asked how close they felt emotionally to each of these four relatives [self-rated on a rating-type scale from 1 (*being very close*) to 7 (*being very distant*)]. Heterosexual and homosexual groups were compared using independent sample *t* tests.

## 4. Results

### 4.1. Reliabilities

Table 1 contains the internal consistency reliabilities ( $\alpha$ ’s) of the four scales, for each group. Reliabilities were moderate to high.

Table 1

Family Relationship Scales: group means, standard deviations, and internal consistency reliabilities ( $\alpha$ 's)

Scale	<i>n</i> items	Homosexual		Heterosexual	
		Mean (S.D.)	$\alpha$	Mean (S.D.)	$\alpha$
General Affinity	4	2.9 (1.7)	.89	2.6 (1.7)	.89
Generosity	12	3.1 (1.1)	.84	2.9 (1.1)	.84
Neediness	9	3.6 (1.1)	.69	3.3 (1.1)	.76
Avuncular Tendencies	9	2.2 (1.0)	.89	2.2 (1.1)	.90

Mean values are from rating-scale responses, from 1 to 7, with 1 being large effect, 7 being small. *P* values for independent *t* tests between the two groups for the four scales were .28, .35, .16, and .88, respectively.

#### 4.2. Family Relationship Scales

Table 1 shows the mean rating-scale value for each of the four Family Relationship Scales. Rating-scale values are from 1 to 7, with lower number indicating greater effect. Scales measured proband's general feeling of closeness to family (General Affinity), tendency to give resources to family (Generosity), tendency to receive resources from family (Neediness), and tendency to give resources to nieces and nephews (Avuncular Tendencies). There was no significant difference between homosexual and heterosexual men on any of the four scales. *P* values for independent *t* tests between the two groups for the four scales were .28, .35, .16, and .88, respectively.

Table 2

Average distance in miles (with standard deviation in parentheses) between respondents' residence and those of various relatives; ratings of emotional distance (range 1–7 with higher numbers more distant); and frequency of contact (number of calls/visits in the past month)

	Homosexual	Heterosexual
From mother	551 (977)	346 (657)
From father	531 (807)	390 (712)
From oldest sibling	702 (995)	771 (1427)
From youngest sibling	568 (996)	446 (616)
Emotional distance		
Mother	2.6 (1.9)	2.4 (1.6)
Father	4.0 (2.0)	3.2 (1.9)*
Oldest sibling	3.8 (2.0)	2.9 (1.9)*
Youngest sibling	2.7 (1.8)	2.9 (1.9)
Frequency of contact (number of calls/visits past month)		
Mother	9.5 (13.0)	16.5 (16.7)*
Father	4.8 (6.1)	11.1 (14.0)*
Oldest sibling	4.9 (9.5)	6.4 (1.7)
Youngest sibling	7.5 (11.6)	6.8 (9.5)

\* Indicates  $P < .05$ .

Table 3

Average monetary flow (with standard deviation in parentheses) to and from relatives over the past year (in US\$)

	Homosexual	Heterosexual
From parents	1865 (5833)	2579 (5435)
To parents	220 (684)	207 (332)
From oldest sibling	185 (1016)	51 (106)
To oldest sibling	59 (144)	140 (344)*
From youngest sibling	56 (157)	118 (456)
To youngest sibling	57 (112)	165 (370)*

\* Indicates  $P < .05$ .

#### 4.3. Questions about specific relatives

There was a nonsignificant trend for homosexual men to live further from their mothers ( $P=.07$ ) and fathers ( $P=.08$ ) than heterosexual men. There was no difference between the two groups concerning how far they lived from their oldest ( $P=.92$ ) or youngest ( $P=.72$ ) siblings (Table 2).

Compared with heterosexual men, homosexual men felt more emotionally distant from their fathers ( $P=.03$ ) but the two groups did not differ in feelings of closeness toward mothers ( $P=.47$ ). Homosexual men felt more distant from their oldest siblings than heterosexual men did ( $P=.02$ ), but there was no difference in feelings towards youngest siblings ( $P=.70$ ) (Table 2).

Homosexual men had significantly less frequency of contact with their mothers ( $P=.02$ ) and fathers ( $P=.01$ ) than heterosexual men did. There was no difference in frequency of contact with oldest ( $P=.41$ ) or youngest ( $P=.45$ ) sibling (Table 2).

There was no significant difference between homosexual and heterosexual men in amount of money they gave to ( $P=.91$ ) or received from ( $P=.54$ ) parents (Table 3).

Homosexual men gave significantly less money to their oldest sibling ( $P=.02$ ) and youngest sibling ( $P=.03$ ) than heterosexual men did. There was no significant difference in how much money probands received from their oldest ( $P=.14$ ) and youngest ( $P=.27$ ) siblings (Table 3).

## 5. Discussion

Contrary to predictions from the kin selection hypothesis of male homosexuality, we found no evidence that gay men are generous to their relatives. More specifically, gay men and heterosexual men were similar on scales measuring General Affinity, Generosity, Neediness, and Avuncular Tendencies. Indeed, on some specific questions, such as feelings toward fathers and oldest siblings, gay men were somewhat more emotionally distant.

Our questionnaire results contrast with the impression generated by some case reports from preindustrial societies of homosexual individuals who rose to high status, attained wealth, and aided their families. For example, Williams (1986) described Native American individuals

who provided homes for relatives, acted as teachers, and managed their families' finances. However, these reports are necessarily anecdotal and unsystematic. Furthermore, recent authors have challenged the idea that homosexual individuals enjoyed high status in native American societies (Gutierrez, 1989; Jacobs, 1997), and speculated that these ideas are idealized and romanticized distortions.

It might be objected that data from a contemporary population are less relevant than data from primitive cultures. For example, nonreproductive nepotistic roles may have been more useful to families in preindustrial societies. Individuals are less connected geographically and emotionally to their extended families in modern societies, and they may be less willing to contribute to their relatives. It is also conceivable that the anti-gay attitudes of many contemporary Americans alienate gay men from their families, thus making it less likely that gay men will behave altruistically toward them. Although our results cannot exclude the possibility that in some other cultures gay men provided substantial benefits to kin, they do suggest that willingness to do so is not a robust feature of male homosexuality, as might be expected if this were an aspect of its "special design." Furthermore, even if we accepted some anthropologists' observations that in some cultures gay men routinely provided exceptional benefits to their kin, this would leave unexplained a phenomenon every bit as surprising as the persistence of homosexuality. Specifically, why would cultures routinely confer privileges and benefits on gay men? Evolutionary explanations that raise as many questions as they answer are not compelling.

One limitation of the present study concerns the fact that data on subjects' income levels were not available. If the two groups were significantly different in income, the results might be called into question. Higher-income individuals would be expected to give more resources to kin. Although the groups did not differ with regard to age, ethnicity, and education, and thus appear to be drawn from similar populations, differences in income levels between the groups would weaken the conclusions.

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