

Alliance Desire and Homosexual Behavior: The Reason Why There are More Male Homosexual Behavior than Female

Ying-Chen Chen^{1#*},

Yangduo Fan^{2#},

Kunxi Liu^{3#},

Yijing Lu^{4#},

Xinyue Wang^{5#}

¹Shanghai American School,
Shanghai, 201107, China,
yingchen01px2026@saschina.org

²Beijing 101 middle school, Beijing,
100091, China, jiduo_6845@
qq.com

³The Middle School Attached
To Northwestern Polytechnical
University, Shaanxi, 710072, China,
2788537917@qq.com

⁴Beijing National Day School,
Beijing, 100039, China,
luyijing2007@gamil.com

⁵BIBS Shunyi Tianzhu Campus,
Beijing, 101399, China,
tanyawangxinyue@gmail.com

*Corresponding author email:
yingchen01px2026@saschina.org
#co-first authors

Abstract:

Based on the hunter-gatherer lifestyle and the alliance theory, this paper proposes two predictions: 1. Males have more homosexual behavior than females; 2. Grassland males have more homosexual behavior than rainforest male. Combined with these predictions, the paper further hypothesizes that the need for alliance is the reason why there is more male homosexual behavior than female. To test these predictions, observational studies of four indigenous groups in Africa are proposed. If the observations agree with the predictions, the hypothesis presented in this paper will be supported.

Keywords: Homosexual Behavior, Alliance Theory, Hunting-gather Lifestyle, Male Homosexual, Female Homosexual.

1. Introduction

Homosexual behaviors seemed common in today's

society as there are more gay and lesbian, but what caused this to occur? It could be due to the internet, which allowed people to be more open to these be-

haviors, or evolutionary, which changed people's sexual preference. There are many different explanations as to why homosexual behavior increased in the modern world. Homosexual behavior, according to the American Psychological Association, is the sexual action between two people of the same sexes who might not fully recognize themselves as gay or lesbian [1]. Currently, in a survey from the Australian and New Zealand Journal of Public Health, 1.6% of the male population considered themselves as gay or homosexual, while 0.8% of the female population considered themselves as lesbian or homosexual [2]. This phenomenon shows that the homosexual community is widespread in Australia and New Zealand and there are more gays compared to lesbians. To study why the number of gays is higher relative to lesbians, this paper includes two different environments as factors, which are grassland and rainforest. By comparing the number of homosexual behaviors under these two different environments, this paper hopes to reveal the reason why there is more male homosexual behavior compared to female homosexual behavior.

1.1 Hunting-gather Lifestyle

Back to human ancestral life, males foraged by hunting while females socialized by gathering on average [3]. Even though most of the societies in the world were already modernized, there are still some indigenous groups that kept the hunting-gather lifestyle [4]. Those indigenous groups lived in different environments, like grasslands, which are generally open and contain fairly flat areas of grass; and rainforests, which are characterized by closed and continuous tree canopies and high humidity. On the grassland, animals usually tend to be large, such as elephants, bison, and zebra. In order to hunt these large animals, males are required to cooperate. Not only does the size of animal's matter, but the wide space of grassland also caused males to work in groups because there were more needs for cooperative chasing and attacking when hunting on a grassland. Since working in groups could be beneficial, those males who live on the grassland tend to value groups more [5]. In contrast, animals in rainforests are relatively smaller than in grassland, such as monkeys and wild boar. The spaces in the forest for cooperation were relatively limited, which was unsuitable and less necessary for males to hunt in groups. Therefore, males who live in the rainforest may not have as many requirements for forming groups as those who live in grassland. Groups are more valuable to those males who live on grasslands.

1.2 Alliance Theory

Follow the preceding paragraph, males need group cooperation to hunt and survive. From the perspective of evolutionary psychology, one of the major selection pressures faced by males comes from hunting. Without prey, there would be no good source of food, and it would significantly disadvantage male individuals who are not skilled hunters in intersexual selection: females tend to choose male partners who are skilled hunters and can provide more food sources for raising their offspring [6]. Therefore, males naturally need to find ways to gain an advantage in reproduction, and forming a long-term and stable alliance with other males is one way to do so. Alliances increase male reproductive opportunities [7]. Therefore, males naturally need to find ways to gain an advantage in reproduction, and forming a long-term and stable alliance with other males is one way to do so. Alliances increase male reproductive opportunities [8], as well as increased social status and access to more resources.

After understanding the causes and effects of male alliances, we can understand that the more a place needs a male alliance, the more it values male cooperation. If we consider homosexual behavior as a way to establish alliances, we can infer that if male in a certain place is more focused on alliances than male in other places, there will be more male homosexual behavior in that place compared to other places. The theory that explains the potential function of male homosexual behavior in this way is the "alliance theory" in evolutionary psychology (this alliance theory is not another alliance theory that is related to the anthropology of kinship). Alliance theory suggests that male homosexual behavior can help male form alliances, thereby improving their social status, gaining access to more resources, and finally helping male achieve reproductive advantage [8]. In the previous speculation, prairie males, in areas where hunting is more challenging, value group cooperation more than males in areas where hunting is less demanding. Thus, it is further predicted that grassland males have more homosexual behavior than rainforest males.

Males and females place different emphasis on teamwork, the hunting-gather lifestyle can better explain why men prefer alliances more [9]: the task assigned to males in the gender division was to go out hunting, which is a high-risk behavior. Natural selection pressures faced by males made them more likely to value alliance cooperation than females [5]. Therefore, because males place more emphasis on alliance cooperation than females, it can be predicted that they will have more male homosexual behavior and form alliances to help their genes reproduce.

Combining our two predictions: 1. Males have more ho-

homosexual behavior than females; 2. Grassland males have more homosexual behavior than rainforest males. We hypothesize that the need for alliance is the reason why there is more male homosexual behavior than female.

2. Method

The experiment is to observe the indigenous groups and compare the different percentages of homosexual behavior among 4 indigenous groups from Africa, which are San People, Hadza, Mbuti Pygmies, and Pirahã. These 4 indigenous groups still keep a hunter-gather life style [4]. In this mode of life, males tend to go out and hunt, while females gathering for food. San people and Hadza are from grassland while Mbuti Pygmies and Pirahã are from rainforest [10-13].

According to the prediction, humans in grasslands usually will hunt in bigger groups than those in the rainforest. As a result, this paper expects to observe a difference in the percentage of male-male sexual behavior between San People, Hadza, and Mbuti Pygmies, Pirahã. Furthermore, inside each group, this paper expects to see a difference between the percentage of male homosexual behavior and females.

The experimenters will observe the 4 groups at the same time and record the data that will be needed for each group, which includes the number of male population, the number of female population, the total number of male population who participate in homosexual behavior, the percentage of male population who participate in homosexual behavior, the total number of female population who participate in homosexual behavior, and the percentage of female population who participate in homosexual behavior. Besides, the experimenters will also record some videos and take some photos while observing. The observation will continue for 365 days without suspension. After the observation, this paper will compare the data gathered and see whether the prediction is true.

3. Discussion

This paper wants to test the reason why male homosexual behavior is greater than female based on evolutionary psychology. The prediction is that the need for alliance is why there is more male homosexual behavior than female homosexual behavior. Because of the limitations of funds, time, and ability, this experiment can't be carried out into reality. Therefore, this paper would discuss the different possible results that can be get if the experiment occurred and link those results back to the prediction.

3.1 Male greater than female

The first result is that regardless of the environment, there are more male homosexual behaviors than female for all the indigenous groups. This result is consistent with our prediction due to the hunting-gather reason and alliance theory.

3.2 Female greater than male

Another possible result is that female homosexual behaviors are more prevalent than males regardless of environment, which means the prediction is wrong. A reasonable explanation for this result is that in all Indigenous groups, females play crucial roles in gathering food and caring for offspring. These tasks require close social and emotional bonds among them, which homosexual behaviors can help form [14]. These formed close social bonds among females could enhance the survival rate of offspring to some extent [15]. Also, same-sex alliances would be formed due to homosexual behaviors [8]. Forming female alliances is helpful for kin selection to a certain degree, which promotes cooperative breeding [16]. Cooperative breeding helps offspring survive better as well [17]. Therefore, homosexual behaviors among females are beneficial for these Indigenous groups' offspring to survive in some way, which could be counted as why the result mentioned above happens.

3.3 Grassland greater than rainforest

This paper supposed that male homosexual behaviors in four groups all have a higher percentage than female homosexual behaviors. If the indigenous groups living under grassland, which are San people and Hadza, have more male homosexual behaviors, then it is consistent with the prediction. Due to the larger animals and open terrain in the grasslands, teamwork is essential for males who live in the grassland while hunting. Therefore, they may face more difficulties compared to the indigenous groups in the rainforest when hunting. Additionally, the alliances can also allow males to gain a range of advantages, such as a higher social hierarchy, and then get more resources. As a result, if the percentage of San People and Hadza's male homosexual behavior is greater than the male homosexual behavior in the rainforest, it can prove the prediction.

3.4 Rainforest greater than grassland

However, if there are more male homosexual behaviors for Mbuti Pygmies and Pirahã, who lived in the rainforest, the result may reject the prediction. There are several reasons why this result might be true. First of all, grasslands males may actually hunt more easily than rainforest males, and have less need for hunting and alliance.

Due to the smaller animals and closer terrain in the rainforest than in grassland, males in Mbuti Pygmies and Pirahã have less chance to hunt in groups. However, alliance may still be an important element for males as it allows them to gain advantages and resources. Therefore, there may be other reasons that let them value their groups. In the four groups being observed, both of the tribes living in the rainforest had polygyny, while the two tribes living on the grasslands had no formal marriage system [4]. There are studies that claim that males marry polygynously to maximize their fertility and to obtain large households containing many young dependent males [18]. In this social environment, the number of female individuals available for male competition would be significantly smaller compared to other types of marriage societies, so in a polygynous society, the intersexual selection faced by males would be more intense, and they would need alliances more to secure reproductive advantages for themselves. Therefore, the rainforest males tend to have more alliances formed through male homosexual behavior than do grassland males.

Furthermore, homosexual behavior may not occur because of the hunting-gatherer lifestyle or alliance theory like this paper supposed. As a result, if Mbuti Pygmies and Pirahã have more male homosexual behavior than San People and Hadza, then the prediction may be wrong.

4. Limitations

In the study, there might still be some limitations. Firstly, all of the four groups that this paper included have different cultures and beliefs about engaging in homosexual behaviors. For example, some groups may not be willing to participate in homosexual behaviors. This might affect the result because if their culture goes against homosexual behavior, it will interfere with the groups participating in it. Additionally, there may be some error while recording the data. Since this paper is observing the indigenous groups in the wild, there may be some accidents, such as raining, animal attacks and so on. Then the observation process might need to be paused. Also, since this paper going to observe the homosexual behaviors, it will be a little difficult to do so because homosexual behavior is quite private for humans. Besides, the indigenous people may act differently because people are watching them, so the data collected may not be valid. All of those limitations above may cause the different possible results that this paper discussed in the previous part. Furthermore, there are some sampling biases in the experiment. The data can only reflect the result of Africa because all four indigenous groups that this paper choose to observe are from Africa. Maybe other continents will have different

results. Therefore, the result may not be valid for us to discuss the phenomenon in modern society. Lastly, there might be ethical problems when observing because their privacy might be violated.

5. Future implication

The future implications of the paper are mainly as follows: First, because this paper focuses on whether alliance desire is the cause of homosexual behavior, the experimental results in this part partially prove or disprove Alliance Theory. Second, this paper also focuses on the impact of sexual differences on the number of homosexual behaviors. If the experimental results in this part are consistent with the prediction, it may be a new pathway for future scholars to study the causes of homosexual behavior, that is, to study male homosexual behavior and female homosexual behavior separately. Finally, if both predictions are correct, that partly proves homosexual behavior plays an important role in the formation of alliances [19]. Alliance is a fundamental means of survival for many organisms, thus providing partial evidence that homosexual behavior may be a result of natural selection.

6. Conclusion

From the possible results that this paper may get after doing the experiment, people can see that if the results being gathered that there are more male homosexual behaviors than female, and the people from grassland have more male homosexual behaviors than people from rainforest, the prediction is true. Therefore, it can be said that males usually value alliance more than females, and homosexual behavior is a way to help them form stronger alliances in order to get more resources. However, the result may not be what this paper expect to have, so the theory may not be correct and need further testing. Nevertheless, the limitations may affect the validity of the result, so that can be another reason.

Acknowledgement

Ying-Chen Chen, Yangduo Fan, Kunxi Liu, Yijing Lu, Xinyue Wang contributed equally to this work and should be considered co-first authors.

References

- [1] APA Dictionary of Psychology (2023) <https://dictionary.apa.org/homosexual-behavior>
- [2] Smith, A. M., Rissel, C. E., Richters, J., Grulich, A. E., & De Visser, R. O. (2003). Sex in Australia: Sexual identity, sexual attraction and sexual experience among a representative sample of adults. *Australian and New Zealand Journal of Public Health*,

- 27(2): 138-145.
- [3] Aizenman, N. (2023). Men are hunters, women are gatherers. That was the assumption. A new study upends it. NPR. <https://www.npr.org/sections/goatsandsoda/2023/07/01/1184749528/men-are-hunters-women-are-gatherers-that-was-the-assumption-a-new-study-upends-i>
- [4] (World Bank), 2023. Indigenous peoples. <https://www.worldbank.org/en/topic/indigenouspeoples#:~:text=Indigenous%20Peoples%20are%20distinct%20social,which%20they%20have%20been%20displaced>
- [5] Baumeister, R. F., & Sommer, K. L. (1997). What do men want? Gender differences and two spheres of belongingness: Comment on Cross and Madson. *Psychological Bulletin*, 122: 38–44.
- [6] Buss, D. M. (2015). *Evolutionary Psychology: The New Science of Mind*. Psychology Press, New York.
- [7] Van Schaik, C.P., Pandit, S.A., Vogel, E.R. (2006). Toward a general model for male-male coalitions in primate groups. In: Kappeler, P.M., van Schaik, C.P. (eds) *Cooperation in Primates and Humans*. Springer, Berlin, Heidelberg. 151-171.
- [8] Kirkpatrick, R. C. (2000). The evolution of human homosexual behavior. *Current Anthropology*, 41: 385–413.
- [9] Murdogk, G.P. (2017) The Current Status of the World's Hunting and Gathering Peoples. In: George Peter, M. (Eds.), *Man the Hunter*. Routledge, Abingdon, Oxon and New York. Pages 19 to 25.
- [10] The Editors of South African History Online (South African History Online website), 2019. "The San". The San | South African History Online (sahistory.org.za)
- [11] Gloria Lotha (Encyclopaedia Britannica website), 2024. "Pygmy". <https://www.britannica.com/topic/Pygmy>
- [12] Tyson Brown and National Geographic Society (National Geographic Society website), 2023. "Hadza". <https://education.nationalgeographic.org/resource/hadza/>
- [13] Silva, H. (FL4K), 2022. The Pirahã Language: A Language Without Color. <https://www.fl4k.com/blog/the-piraha-language>
- [14] Barron, A. B., Hare, B. (2020). Prosociality and a Sociosexual Hypothesis for the Evolution of Same-Sex Attraction in Humans. *Frontiers in Psychology*, 10.
- [15] Silk, J. B., Beehner, J. C., Bergman, T. J., Crockford, C., Engh, A. L., Moscovice, L. R., Wittig, R. M., Seyfarth, R. M., & Cheney, D. L. (2010). Strong and Consistent Social Bonds Enhance the Longevity of Female Baboons. *Current Biology*, 20: 1359-1361.
- [16] Pollack, L., Rubenstein, D. R. (2015). The fitness consequences of kin-biased dispersal in a cooperatively breeding bird. *Biology Letters*, 11.
- [17] Brouwer, L., Richardson, D. S., & Komdeur, J. (2012). Helpers at the Nest Improve Late-Life Offspring Performance: Evidence from a Long-Term Study and a Cross-Foster Experiment. *PLoS ONE*, 7.
- [18] White D. R., Burton M. L. (1988). Causes of Polygyny: Ecology, Economy, Kinship, and Warfare. *American Anthropologist*, 90: 871–887.
- [19] Adriaens, P. R., Block, A. D. (2006). The Evolution of a Social Construction: The Case of Male Homosexuality. *Perspectives in Biology and Medicine*, 49: 570–585.