

ASSOCIATION OF CEREBRAL NETWORKS IN RESTING STATE WITH SEXUAL PREFERENCE OF HOMOSEXUAL MEN: A STUDY OF REGIONAL HOMOGENEITY AND FUNCTIONAL CONNECTIVITY

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Recent imaging studies have shown that brain morphology and neural activity during sexual arousal differ between homosexual and heterosexual men. Whether the structural and task-related functional differences also exist in the resting state is unknown. The purpose of the study is to characterize the association of homosexual preference with measures of regional homogeneity and functional connectivity in the resting state. Participants were 26 homosexual men and 26 age-matched heterosexual men. The sexual orientation of every participant was evaluated using the Kinsey Scale. We first assessed group differences in regional homogeneity and then, taking the identified differences as seed regions, we compared groups in measures of functional connectivity from those seeds. The behavioral significances of the differences in regional homogeneity and functional connectivity were assessed by examining their associations with scores on the Kinsey Scale. Homosexual participants showed significantly reduced regional homogeneity in the left inferior occipital gyrus, right middle occipital gyrus, right superior occipital gyrus, left cuneus, right precuneus, and increased regional homogeneity in the rectal gyrus, bilateral midbrain, and left temporal lobe. Regional homogeneity correlated positively with Kinsey scores in the left inferior occipital gyrus. The homosexual group also showed reduced functional connectivity in left middle temporal gyrus, left supra-marginal gyrus and right cuneus. In addition, the connection between the left inferior occipital gyrus and right thalamus in the homosexual group was correlated positively with Kinsey scores. This differences in homogeneity and functional connectivity may contribute to a better understanding of the neural basis of male sexual orientation.