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Dear Dr. Lieberman,

I am happy to submit my manuscript, **An Agent-Based Model of Gender and Sexual Orientation Differences in Short-Term Mating Behaviors as a Result of Mating Preferences**, for your consideration as Theoretical Contributions at *Evolution and Human Behavior*.

This work took gender differences in mating preferences as conceptualized by the sexual strategies theory (Buss & Schmitt, 1993; Buss & Schmitt, 2019) as a starting point, and used an agent-based model to investigate the circumstances under which these differences would result in gender differences in short-term mating behaviors. The model showed that when all individuals in a closed heterosexual population were considered, men and women had the same average number of short-term mating experiences and short-term mates even when men had stronger preferences for short-term mating. Men (vs. women) had a higher average number of both experiences and mates when analyses were limited to only heterosexual men and women who successfully participated in the mating pool (i.e., those with a non-zero number of short-term mating experiences). Moreover, when men (vs. women) had stronger preferences for short-term mating, gay men had a higher average number of experiences and mates compared to both lesbian women and heterosexual men. These results highlight the distinction between preferences and behaviors in human mating and cast doubt to the prevalent belief in the gender differences in short-term mating behaviors, especially among heterosexual individuals.

My coauthors listed in the title page has agreed to the order of authorship and to submission of the manuscript in this form. As the corresponding author, I will keep my coauthors informed of our progress through the editorial review process, the content of the reviews, and revisions made.

The manuscript is not under review elsewhere.

Sincerely,

Yurun Ying, B.A.

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