

# Is *Big Brother* Equitable? Diving into Disparities on the Hit Reality Show

Ryan Mitchell • December 18, 2023

## 1 Introduction

Based on George Orwell's dystopian novel *1984*, *Big Brother* is a hit reality television competition that sees a group of contestants enter a house with 24/7 audio and video surveillance. Originally created by John de Mol and launched in the Netherlands in 1999, the show followed twelve players, known as "houseguests", on a 106-day journey where the viewers would periodically vote to "evict" one of them, eliminating them from the competition; when the series was not airing, audiences could view the houseguests' every move via an online livestream. The show came to the United States a year later with the same format, but disappointing ratings for *Big Brother 1* led to a massive shift in approach. From *Big Brother 2* to the most recent installation *Big Brother 25*, the show has given the power to the houseguests, forcing them to evict each other and adding a power struggle component to the fascinating social experiment.

Over the years, *Big Brother* has repeatedly made headlines for problematic behaviors exhibited by both the cast members and production. In 2013, racist and homophobic remarks made by several houseguests on *Big Brother 15* [made national news](#), leading to contestants [losing employment](#) and facing extensive backlash from the public. Additionally, the show has historically been scrutinized for a lack of diversity in casting, underscored by the fact that the program produced zero Black winners in its first 22 seasons. Most recently, *Big Brother 25* frustrated audiences as female houseguests won a measly 6 out of 31 weekly competitions; production was also accused of not making proper accommodations for their [first deaf houseguest](#). Fortunately, CBS, the network on which *Big Brother* airs, has taken steps to counteract this history of inequity, namely by launching an initiative to make all reality show casts [at least 50% Black, Indigenous, People of Color](#).

This project will examine the potential influence of certain demographic factors on how a houseguest fares on *Big Brother*, aiming to discover if the program has been equitable for past contestants. Two metrics of performance will be investigated: how a houseguest places on a season (1st, 2nd, 3rd, etc.), and the number of competitions a houseguest wins. How the relationships of demographic factors with performance change over time will also be studied as a means of measuring both the effectiveness of network initiatives and the power of a constantly evolving society.

## 2 Methodology

### 2.1 Data

The bulk of the data for this project comes from a dataset created by Vince Dixon as a part of their [2019 data visualization project](#) on diversity in *Big Brother*. Dixon gathered both demographic and performance data on contestants from the first 23 seasons;

since there had been no updates made since early 2022, I manually entered the same data for houseguests from *Big Brother 24* and *Big Brother 25*, using the [Big Brother Wiki](#) for reference. The resultant dataset contains 357 rows, one for each contestant from the show's second to its twenty-fifth season (houseguests from *Big Brother 1* are omitted due to the show's different format, involving audience evictions and no weekly power competitions.) While Dixon's original dataset contained 49 variables, this was reduced to 17 through both the removal of unneeded columns and the creation of new ones. Data wrangling and cleaning was conducted in both Google Sheets and R.

Variables of note for this project include the following (where a hashtag indicates the variable was not in the original Dixon dataset):

- **age**: Numeric variable indicating age of the houseguest at time of filming
- **gender**: Binary indicator of the gender of the houseguest at time of filming. Note that *Big Brother* has never cast an individual who is openly neither male nor female, but contestants have come out as non-binary after the show.
- **BIPOC<sup>#</sup>**: Binary indicator on whether or not the houseguest is Black, Indigenous, and/or a Person of Color. An "N" in this column refers to white, Anglo-American contestants.
- **LGBT<sup>#</sup>**: Binary indicator on whether or not the houseguest identified as part of the LGBT community at time of filming.
- **season\_code**: Numeric variable indicating the season that the houseguest participated in.
- **placement\_bucket<sup>#</sup>**: Ordinal variable indicating how well a houseguest placed on their season. The five levels are "Early Out", "Lower Middle", "Upper Middle", "Late Game", and "Winner"; these each encompass one quarter of the houseguests on each season, except for the fourth quarter which is split into "Late Game" and "Winner".
- **wins\_bucket<sup>#</sup>**: Ordinal variable indicating how many competitions a houseguest won on their season, relative to the other houseguests. If multiple houseguests won the same number of competitions, those who were evicted earlier will receive a better rank as they had less opportunities to win competitions. The four levels are "Bottom Quartile", "Low Quartile", "High Quartile", and "Top Quartile"; these each encompass one quarter of the houseguests on each season.

The response variables for this project will be `placement_bucket` and `wins_bucket`. The decision to define a houseguest's placement and competition performance as relative to the other contestants on their season is to account for the fact that different seasons have different amounts of houseguests and competitions; winning 2 competitions on a 10-week season is not identical to winning 2 competitions on a 14-week season.

## 2.2 Exploratory Data Analysis

To visualize potential disparities in performance on *Big Brother* across demographic groups, I conducted exploratory data analysis on the 357 houseguests.

### 2.2.1 Placement

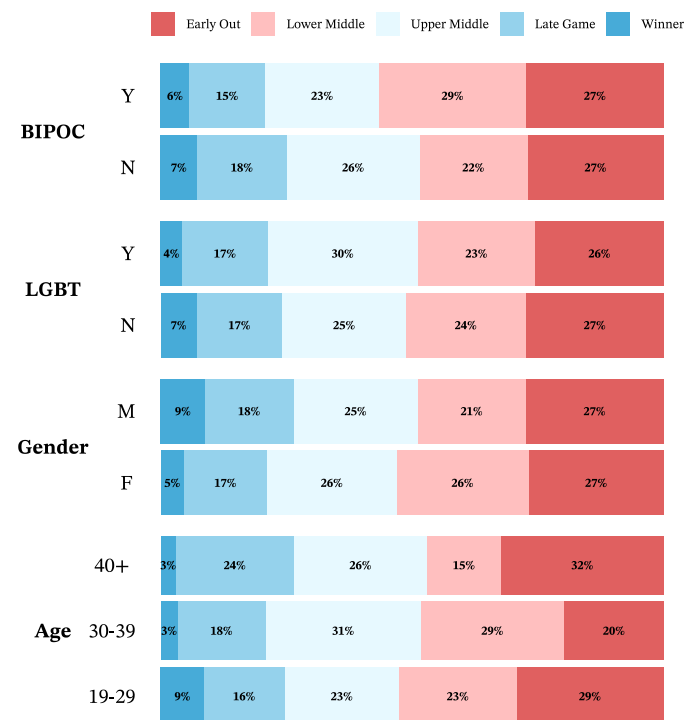


Figure 1: Breakdown of placement by demographic group

**Figure 1** displays the breakdown of *Big Brother* placement by BIPOC status, LGBT status, gender, and age group; in a scenario with perfect equity, all bars (except Late Game and Winner, which would need to be added together) would be at 25%.

For *LGBT status*, there does not seem to be a major disparity between queer and non-queer houseguests when it comes to making the upper middle portion of the game (51% for LGBT, 49% for non-LGBT); however, the proportion of non-LGBT houseguests who go on to win the game is almost double the proportion for LGBT houseguests (7% versus 4%.) There have only been two openly queer winners of *Big Brother*: Andy Herren in season 15, and Kaycee Clark in season 20. Fortunately, queer representation on the show appears to be on the rise, with the three most recent seasons topping the list for most LGBT houseguests (3 in season 24, and 4 in seasons 23 and 25.)

For *gender*, men have historically dominated the winners circle, taking the title in 17 out of 25 seasons of *Big Brother*; unfortunately, this trend does not seem to be on the decline, with only one woman winning in the five most recent seasons. The proportion of women making it to the late-game stage in general is also noticeably lower than it is for men (22% vs 27%); potential explanations for this could include the historical failure of women's alliances, implicit/explicit biases on the basis of gender, or competition design that favors men (which will be touched upon later.)

For *age*, houseguests in their thirties and beyond have historically had trouble clinching the win; the proportion of 19-29 year olds who earn the prize is triple that of the other age groups. This makes intuitive sense, as *Big Brother* casting has always skewed younger (median = 27, median = 29.1) and alliances tend to be formed on the basis of similarities. Despite this, though, houseguests above the age of 40 actually make the late game at a higher rate than the other age groups; on the flip side, their rate for being an early out is also the highest. There are two stereotypical outcomes for older houseguests on *Big Brother*: evicted first, likely due to not fitting in well with the group (like Jodi Rollins on season 14 or Steve Arenta on season 20), or taken to the end, likely due to not being seen as a threat (like Kevin Schlehuber on season 19 or Felicia Cannon on season 25.) Dick Donato from *Big Brother 8* is the only houseguest over 40 to win, doing so at the age of 44.

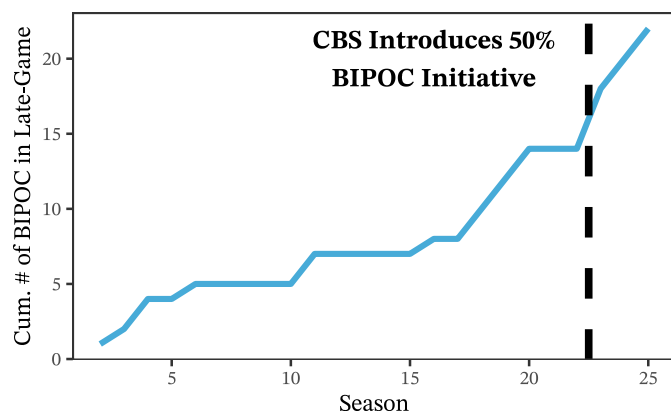


Figure 2: Cumulative total of BIPOC houseguests making it to the late-game stage of *Big Brother* by season number. Late-game stage is defined as placing in the top 25% of contestants on your season, including the winner.

*BIPOC status* is unique in that it is the only demographic factor that the *Big Brother* casting team has explicitly addressed, namely via their aforementioned “50% BIPOC initiative” in 2020. As such, I wanted to examine how the performance of BIPOC houseguests on the show has shifted over time. **Figure 2** displays the cumulative total of BIPOC houseguests making it to the late-game (including winners) by season number, which reveals several trends in the on-show success of members of this community. Overall, as shown in **Figure 1**, BIPOC houseguests have made the upper middle stage of the game at a noticeably lower rate than their non-BIPOC counterparts (44% vs 51%); they also have struggled more making it to the late game, although their proportion of winners is on par with that of non-BIPOC (in much thanks to the consecutive wins of 3 BIPOC houseguests in every season since the diversity initiative.) Since the diversity initiative, which began after season 22, more BIPOC houseguests have managed to make it to the late-game; this comes after three noticeable stalls where none reached the end (seasons 7-10, 12-15, and 21-22.) From exploratory analysis alone, the initiative appears to be increasing equity for BIPOC contestants.

## 2.2.2 Competition Performance

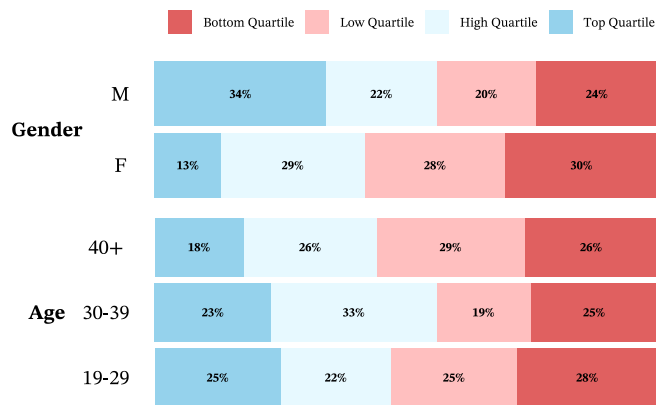


Figure 3: Breakdown of competition performance by demographic group

**Figure 3** displays the breakdown of *Big Brother* competition performance by gender and age; these are the only factors examined due to their impact on one's physicality. There are two main competitions that occur each week of the show: the *Head of Household (HOH)* competition, where the winner gets to nominate two houseguests for possible eviction, and the *Power of Veto (POV)* competition, where the winner may save one of the two nominees (if they choose to do so, the HOH must then name a replacement nominee.) Other competition variants have been introduced over the years, but only HOH and POV wins will count towards a houseguest's performance.

For *gender*, there is a blatant disparity in competition performance between men and women, signaling that past competitions might be inequitable. The proportion of men in the top quartile of performers on their season is almost triple the proportion for women (34% vs 13%); furthermore, women have been noticeably more often in the bottom half of performers (58% vs 44% for men.)

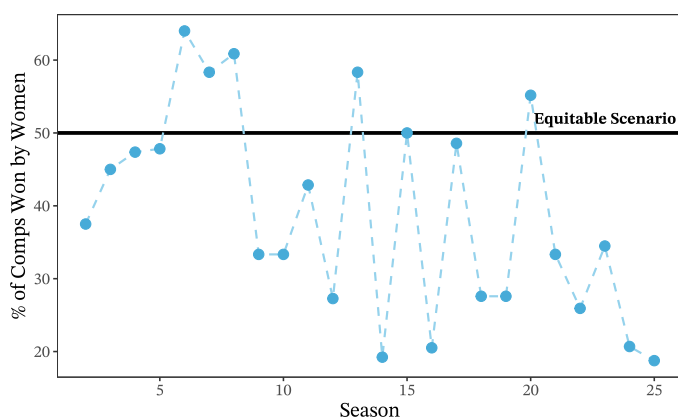


Figure 4: Percent of competitions won by women during each season of *Big Brother*

**Figure 4** offers another illustration of the gender imbalance when it comes to competition wins. Women have only won >50% of competitions in 6 out of 25 seasons; furthermore, more modern seasons of *Big Brother* are seeing historically low win percentages for women. After a new set design was unveiled for season 22,

ushering in what some fans have referred to as the “New Era” of the show, women have won <35% of competitions in every season. Additionally, the most recent iteration, *Big Brother 25*, saw the lowest ever female win percentage at 19%. Viewers have criticized the show for its recent overreliance on physical competitions, which have historically favored men; older competitions more often involved a social, strategic, or mental aspect, making them more equitable for all contestants.

Disparities in performance are less pronounced for *age*, although there are trends worth mentioning. While 19-29 year old houseguests are split approximately evenly across the board, houseguests over 40 have struggled to make it into the top quartile of competition performers, only doing so 18% of the time. Interestingly, houseguests in their thirties seem to have the upper hand, performing in the top half 56% of the time (compared to 44% for 40+ and 47% for 19-29.)