

## **2016 Brony Study Summary**

Working Paper

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## 2016 Brony Study Summary

### Introduction

In the past year, our research team has conducted two survey-based psychological studies with the goal of understanding what makes bronies tick. In the present paper, we outline some of the more interesting results from our second study, conducted in September of 2016. The study involved the participation of fans from a post on Equestria Daily, requesting their assistance in answering a series of questions regarding a variety of topics to further understand the fan community as a whole. These surveys included measures regarding fan identity, favorite character, well-being, and a variety of other surveys used in the study of other fan communities including online anime fans, sport fans, and furies. In total, we ended up with a sample of 1055 MLP fans.

A complete write-up of all of our results is impossible, given that the database itself contains hundreds of variables; this means that if we were to *only* present a list of all of the simple relationships between two variables in the dataset, we would have to conduct thousands of unique analyses (to say nothing about the dozens of more complex analyses we would also conduct, including ANOVAs, multiple regression, structural equation modeling, and factor analysis). To keep this write-up manageable, we've tried to present the findings we think bronies will find the most interesting, based both on questions we've been asked by bronies in the past and guided by the intuition of Dr. Courtney Plante and Daniel Chadborn, both of whom are bronies.

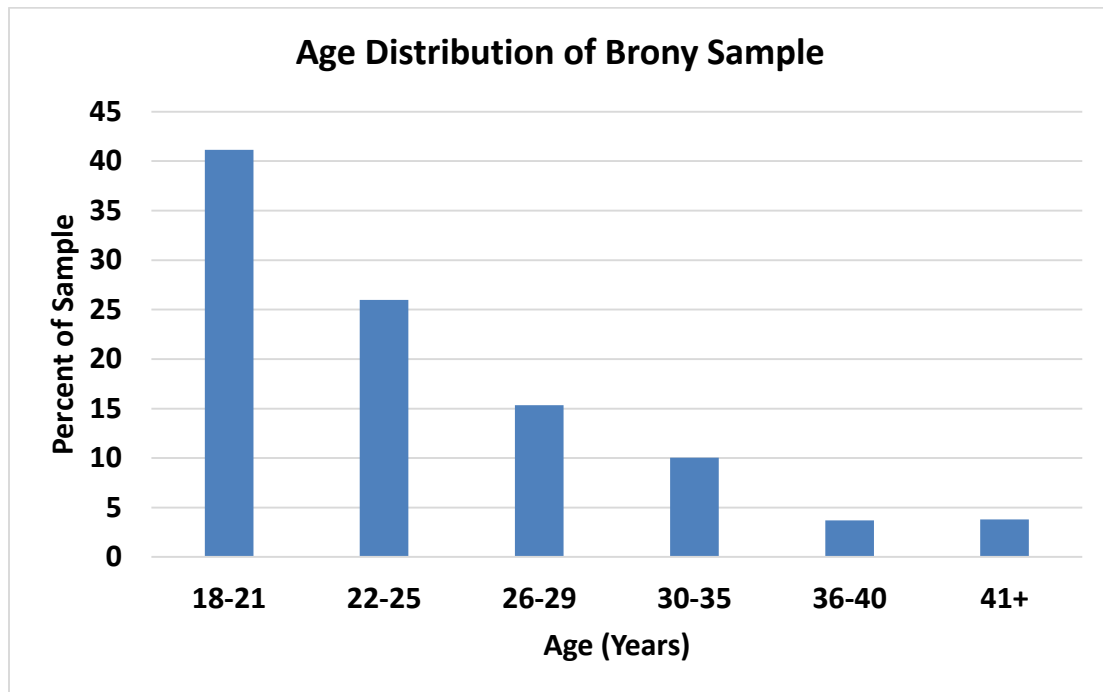
It should also be noted that the results of these analyses are presented in a simplistic format, on the assumption that the majority of readers are unfamiliar with statistical analyses and the interpretation of their results. Where possible, we've tried to condense the results into easy-to-read tables, accompanied by a simple explanation of the results. For the stats-savvy: most of the analyses below involve *t*-tests, ANOVAs, multiple regression, and conditional regression analysis. For all but the last category of analyses, we relied on traditional null-hypothesis significance testing with a criteria of  $p < .05$ . For the last category, we generated 95% confidence intervals and made judgments about the significance of an effect based on whether the confidence interval contained a value of 0.

If you have any questions, concerns, or criticisms about the presented findings, would like us to run an analysis to satisfy your own curiosity, or would like to suggest questions for future studies, please e-mail Dr. Courtney Plante at [cplante@iastate.edu](mailto:cplante@iastate.edu)

Thank you for your interest in our research, and many thanks to the bronies who generously volunteered their time to take part in this study. Your support of science would certainly bring a smile to the face of one purple-hued alicorn princess in particular!

## 1. How old is your sample?

Short answer: Approximately 80% of our sample was under the age of 30; the largest single group of participants were 18-21.

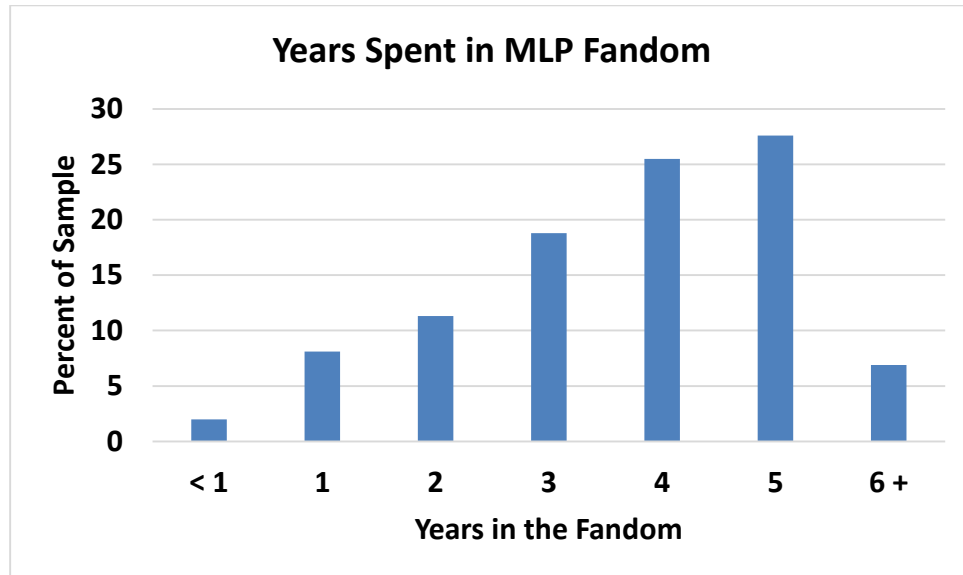


Long answer: Due to ethical guidelines governing our data collection procedures, we were unable to recruit or retain data on participants under the age of 18. As such, the youngest participants in the present sample are 18. This means that our estimate of the average brony's age (24.7 years) is actually an *overestimation*; in actuality, many bronies are under the age of 18, and if they were included in our sample, they would have lowered the average age.

It's worth noting in the figure above that bronies tend to be relatively young: only about 15-20 percent of our sample was over the age of 30.

## 2. How long has the average MLP fan been a fan?

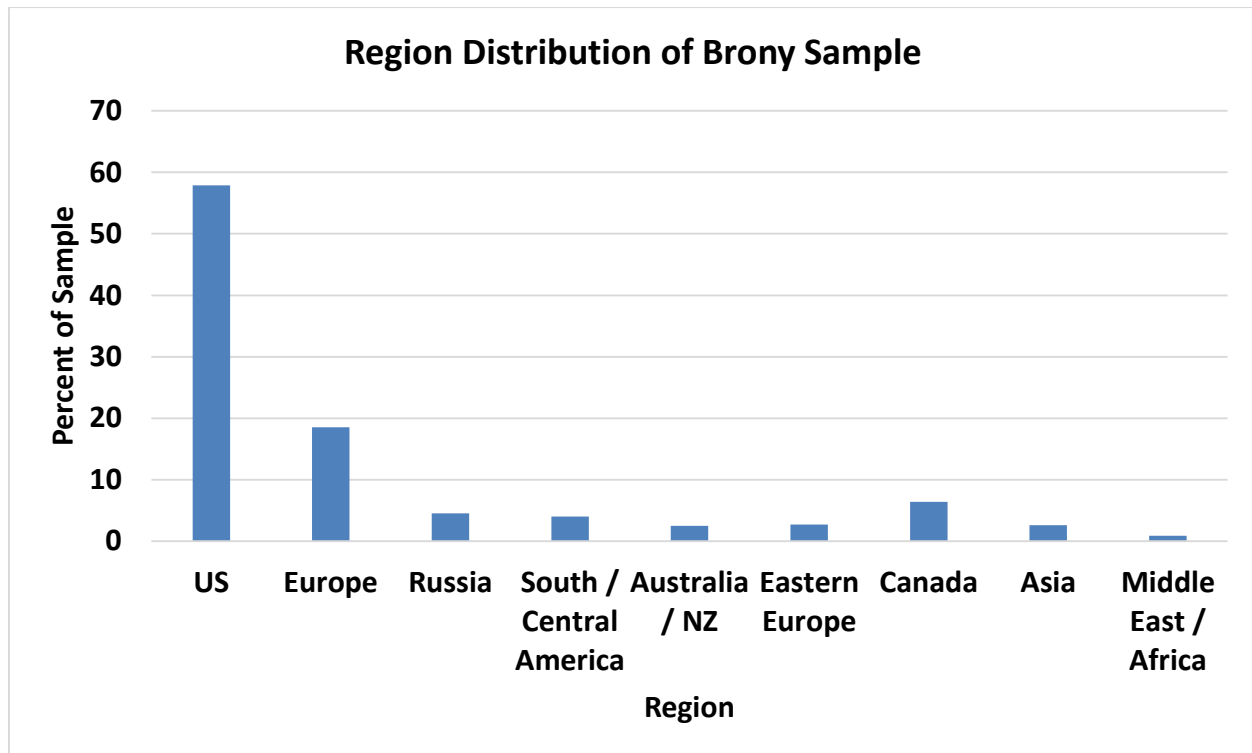
Short answer: The average MLP fan in our study indicated that they have been a fan for 3.70 years. The fandom is fairly heavily weighted toward fans who have been around for longer, suggesting that there is relatively little flow of new fans into the community.



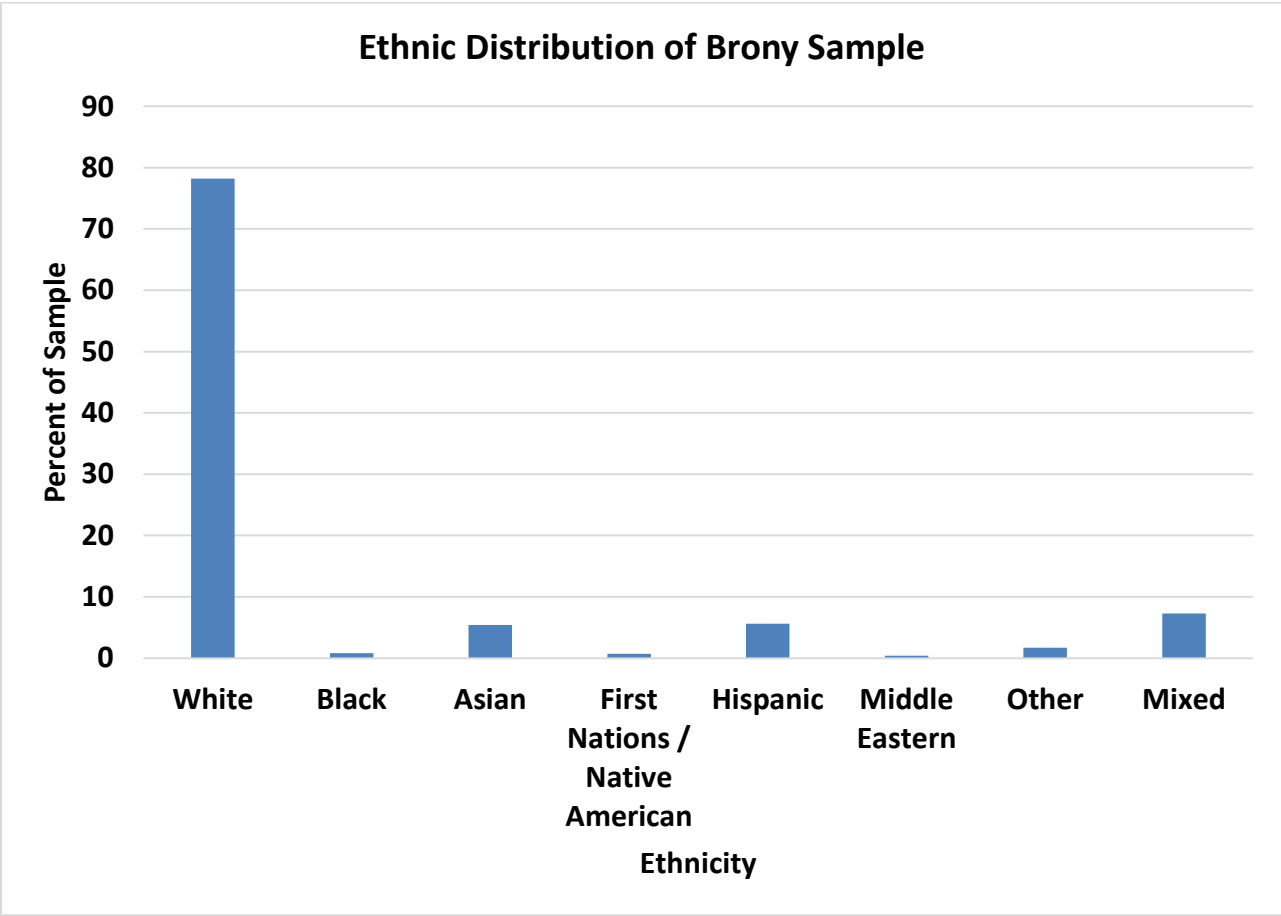
Long answer: As the figure above illustrates, the majority of MLP fans have been in the fandom for at least a couple of years. The average MLP fan has been one for 3.70 years. Two noteworthy trends in the data are the sharp increase in fans between “6+ years” and “5” years, which may illustrate the rapid influx of MLP fans during the early seasons of the show, and the relatively small number of fans who are new to the fandom. One possibility is that there are simply few new fans coming into the MLP fandom. Another possibility, however, is that new fans are less likely to have found or spent time on the website(s) where we recruited participants.

### 3. Where did your sample come from?

Short answer: Our sample comes primarily from the United States, with a significant portion of participants also coming from Europe and Canada. That said, more than 15% of our sample came from countries outside this region.



Long answer: Because the survey was conducted in English, it comes as no surprise to us that participants in the study came predominantly from English-speaking countries. It's worth keeping this in mind before assuming that our sample constitutes an accurate picture of bronies worldwide (especially given that MLP has been translated into dozens of languages and airs in countries all over the world). That said, we *can* say that our sample is predominantly North American, with more than 60% of participants coming from the United States or Canada. A considerable number of participants (approximately 25%) also come from Europe or Russia. It may prove fruitful, in future studies, for us to devise questions aimed at directly testing whether there are cultural differences in the experience of bronies and the MLP fandom.



In a related vein, the above figure outlines the ethnic composition of our sample of brony fans. Likely owing to the predominantly-white countries in which the participants were drawn, the vast majority of bronies are white.

#### **4. What is the sex / gender composition of participants in your sample?**

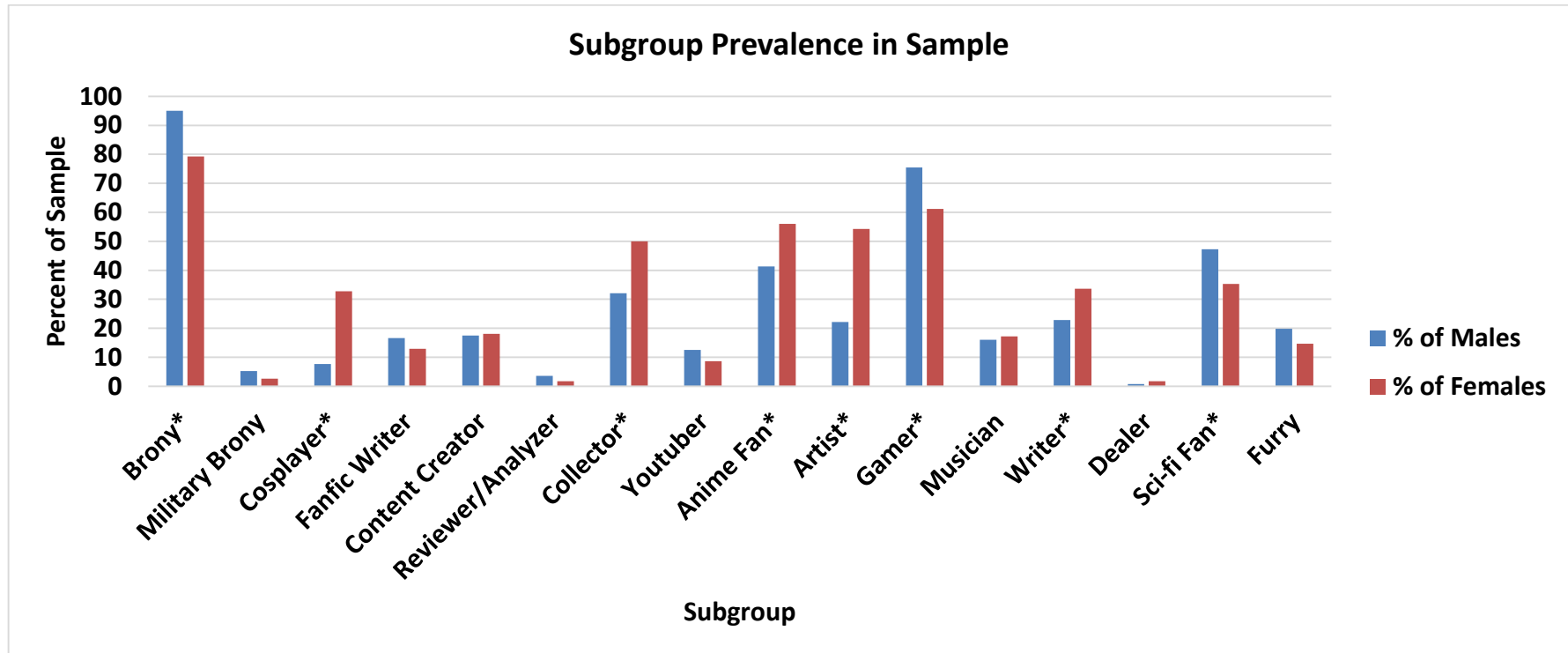
Short answer: While the brony fandom (at least, among those in our sample) is predominantly male, there is nevertheless a significant female presence. In addition, there are considerably more transgender, genderqueer, and gender non-binary people in the brony fandom than in the general population.

Long answer: We assessed sex and gender as separate constructs, defining a person's sex in terms of their physiology (e.g., male, female, intersex) while recognizing gender as a distinct construct (e.g., whether a person identifies as a man, woman, non-binary / genderqueer, etc.) The results show that the majority of bronies are male (87.8% vs. 11.0% female), and a comparable majority of bronies likewise identify as men (83.9% vs. 13.3% who identified as women). Transgender persons made up 5.4% of the sample, while non-binary and self-identified genderqueer participants made up an additional 3.6% of the sample (it should be noted that participants were encouraged to select as many options as were relevant to them, and were provided with space to write in their own options). We thusly conclude that bronies, as a group, are predominantly male.

Interestingly, estimates of the prevalence of transgender persons in the general population typically estimate it to be less than or around 1%, meaning there are considerably more transgender persons in the brony community than in the general population. Whether this is due to the open and inclusive norms of brony culture making it a particularly inviting place for transgender persons to join or the fact that these norms may make it easier for transgender people to feel comfortable expressing their gender identity (something they may feel less comfortable doing in other contexts) remains as a question for future studies.

## 5. How prevalent are particular subgroups and related interests in the brony community?

Short answer: While our sample primarily consisted of self-identified bronies, numerous other prevalent subgroups or related interests were also found among participants, including cosplay, collecting figures / products, anime, artists, gamers, writers, and science-fiction. For some of these activities, there were significant sex differences in the composition of these subgroups.

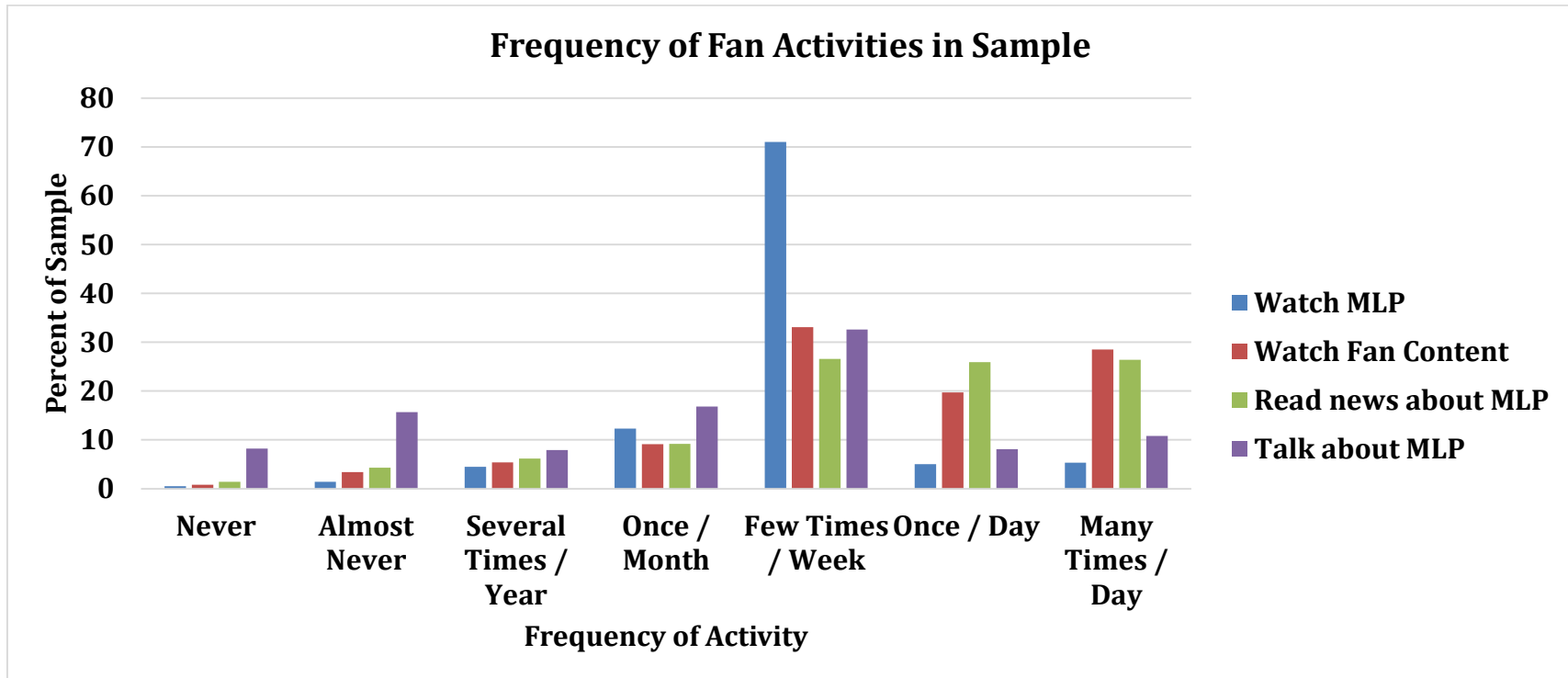


Long answer: Prior work on anime fans and furies suggests there is considerable overlap between these and other fandoms. This seems to be the case in the brony fandom, as illustrated by the figure above. While certain activities seem fairly niche or limited (e.g., reviewer, analyzer, dealer), others were engaged in by more than half of the sample (e.g., gamer). A number of significant sex differences were observed, indicated by asterisks above the name of the group. For example: female fans were more than three times as likely to cosplay as male fans were and were similarly more than twice as likely to be artists. Male MLP fans were also more likely to describe themselves with the term “brony” than female fans. As a final note, the prevalence of bronies who are furies (15-20%) is comparable to the number of furies who identify as bronies in prior research (approximately 20%).



## 6. How prevalent are certain MLP-related activities among fans?

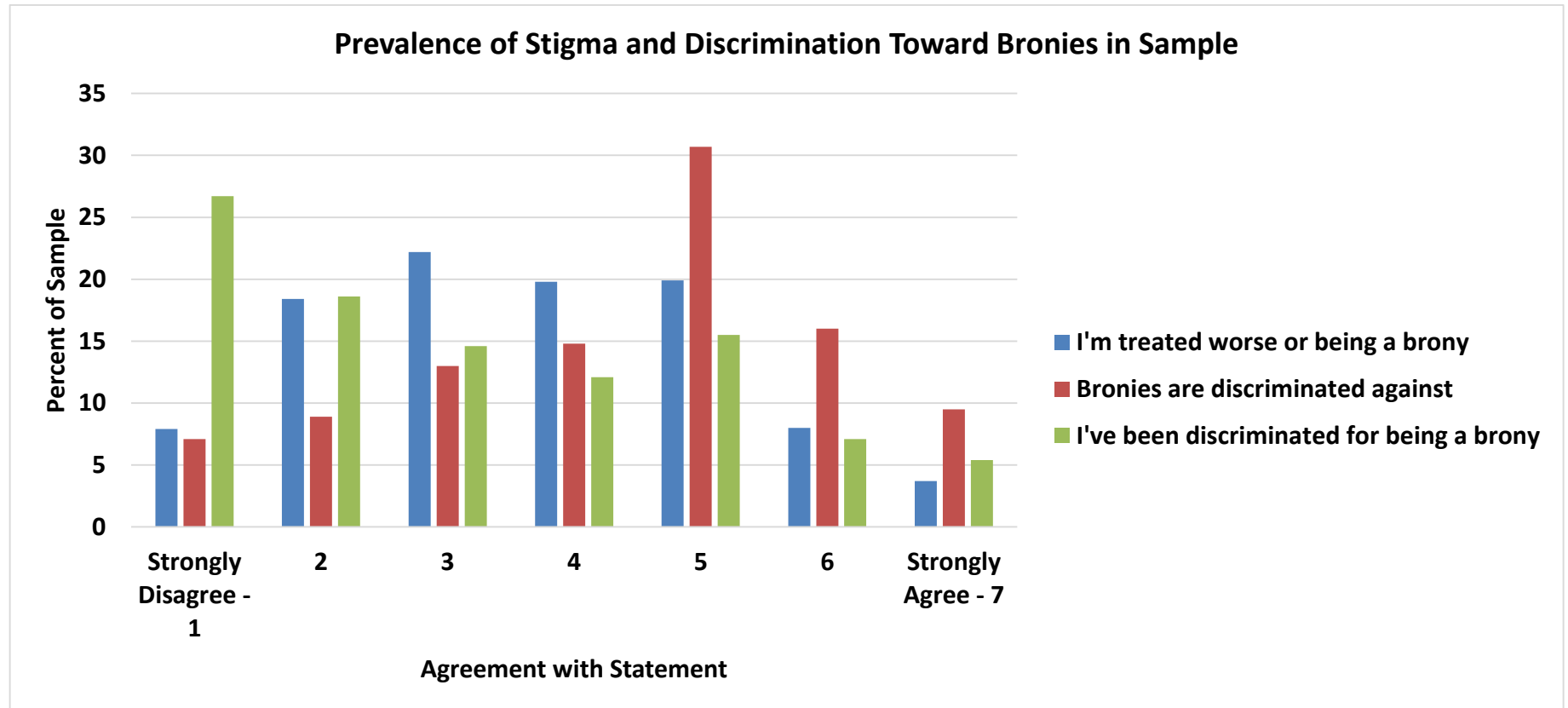
Short answer: While the MLP fandom may be organized around a television show, this is not the most popular MLP-related activity among fans. Fans more frequently spend their time consuming fan-made content and learning about MLP-related news on online websites and forums than they do watching the show itself.



Long answer: The figure above shows that while bronies tend to watch *My Little Pony* on a roughly weekly basis (largely in accordance with its once-a-week airing schedule), other activities, including consuming fan-made content, are more prevalent. This makes intuitive sense if one considers that there are likely hundreds, perhaps thousands of hours of fan-made content for every hour of official content produced. It's also worth noting that numbers for reading about MLP-related news are likely inflated due to the primary source of participant recruitment, which is, itself, an MLP-related news website.

### 7. Do bronies experience discrimination from others?

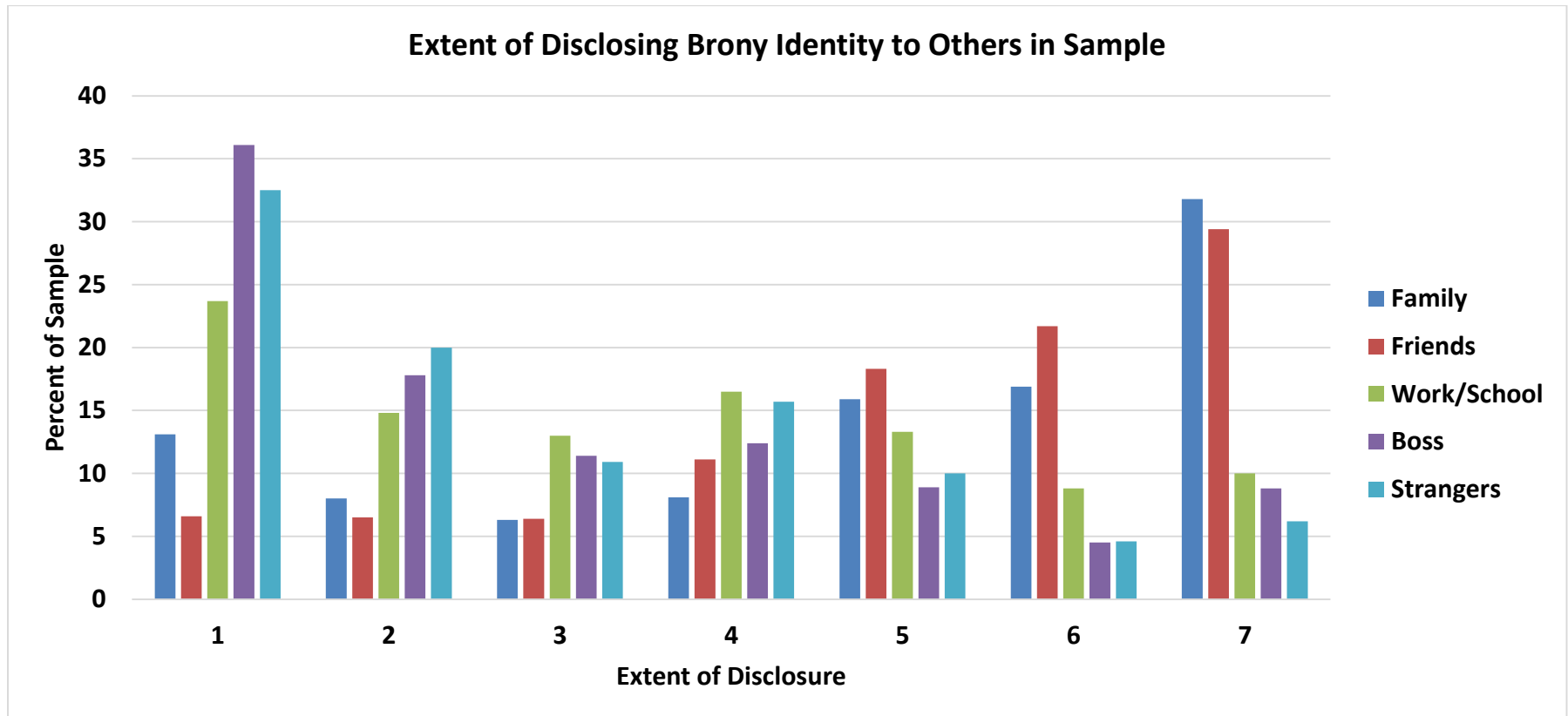
Short answer: Some, yes, although this discrimination may be directed at bronies, as a group, more so than individual bronies.



Long answer: As the data above show, bronies experience at least a moderate amount of discrimination. Interestingly, however, the red bars – scores for bronies as a collective group – are higher than scores for individual bronies (blue and green). One possible explanation is that bronies over-estimate the extent to which individual bronies are discriminated against: they assume that most bronies experience discrimination, but they personally receive less. Another possible interpretation is that discrimination toward bronies tends to be directed toward bronies as a group, rather than toward individual members of the community. Future research is needed to disentangle these two possible explanations. It is also worth noting that male and female fans did not differ in the amount of discrimination they experienced for being fans.

### 8. Do bronies tell others about their interest in MLP?

Short answer: When it comes to friends and family, they typically do. When it comes to work, school, supervisors, and strangers, however, bronies are more likely to conceal their fan interests.



Long answer: When it comes to friends and family, most bronies disclose their fan interests. This is likely due to the fact that many of their friends may be bronies themselves, and many bronies may trust their families' to react neutral / positively to this information. In contrast, bronies are much more divided regarding disclosure to co-workers / other students, with a slight tendency to conceal. At work and with complete strangers, most bronies are inclined to completely or predominantly conceal their fan interests. In general, female fans were more likely than male fans to disclose their fan interests to others.

## 9. Is experiencing discrimination for being a brony a big deal?

Short answer: Yes – the more strongly people identify as bronies, the more likely they are to experience discrimination, which takes its toll on well-being.

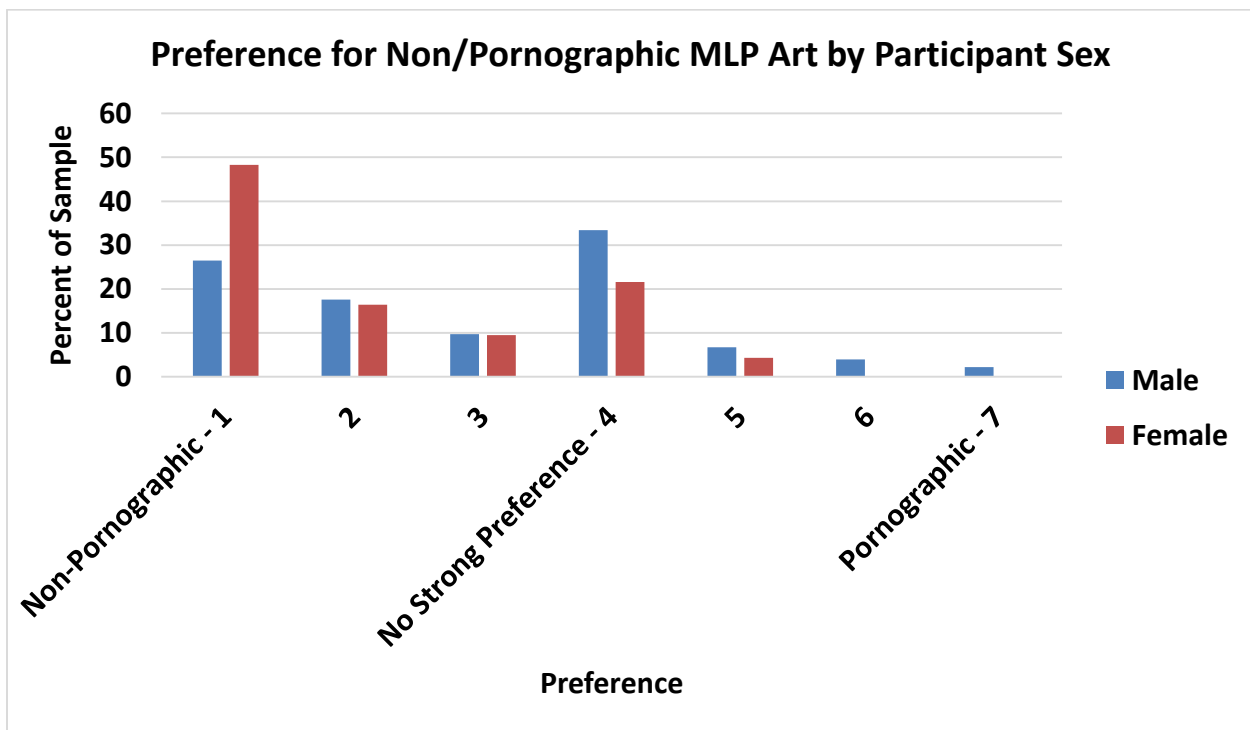


Long answer: We tested a number of different statistical models on the data, arriving at the model pictured above. The shaded grey line below illustrates our first test of whether there is an overall relationship between identifying as a brony and well-being: the evidence suggests that this isn't the case. However, we tested a second model (blue arrows), which included experienced discrimination. The data strongly supported this pathway: people who identify as bronies are more likely to experience discrimination for being a brony and are also more likely to experience lower scores in well-being. Illustrating the resiliency of these findings, we tested this model with four different measures related to well-being: self-esteem, anxiousness, depression, and social anxiety. In all for cases, evidence was found for this pathway, suggesting that discrimination for being a brony, far from being trivial, may well take a toll on a person's subjective well-being.

## 10. What is the prevalence of, and attitudes toward pornography use among MLP fans?

Short answer: While male fans more frequently consumed MLP-themed pornography and held more positive attitudes toward it than female fans, fans in general tended to overestimate the frequency with which MLP fans consumed pornography. Attitudes toward pornography in the fandom were fairly mixed, though the vast majority of fans indicated that their interest in MLP-themed art was not exclusive to pornography.

Long answer: When asked to estimate the frequency of pornography use among male and female fans, both male and female fans over-estimated the prevalence for both males and females. Or, to put it another way, MLP fans generally overestimated how frequently other fans looked at MLP-themed porn. Male fans were twice as likely (72.7%) as female fans (36.3%) to indicate that they viewed MLP-themed pornography with at least *some* frequency. On average, fans indicated only moderately positive attitudes toward pornography in the fandom, with male fans (4.33/7.00) holding more positive attitudes than female fans (3.18/7.00) toward MLP-themed pornography.

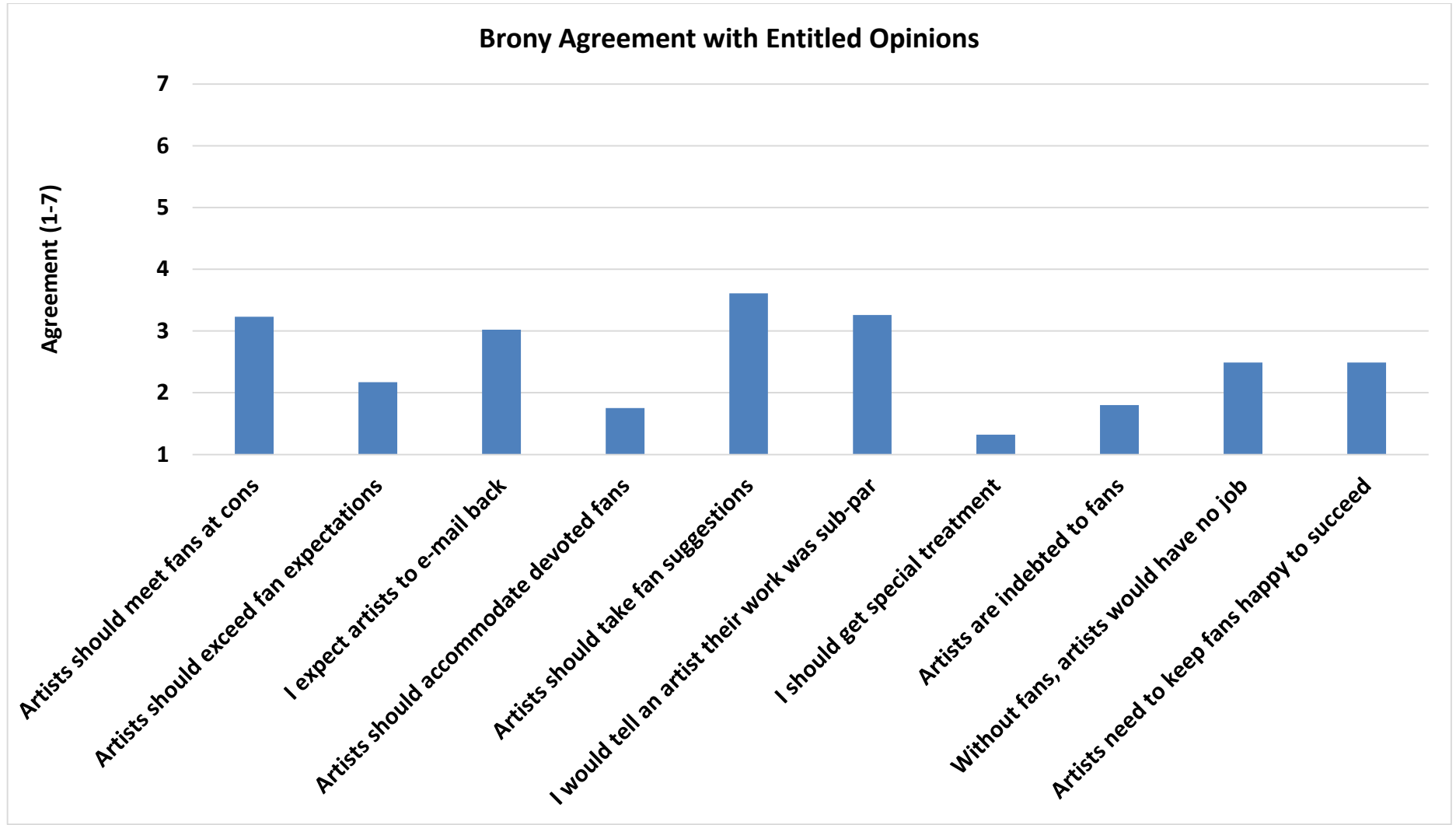


While attitudes toward MLP-themed pornography in the fandom may have been mixed, a clearer picture emerged when participants were asked whether the MLP-themed content they consumed tended to be non-pornographic or pornographic in content. Female fans tended to prefer non-pornographic content, and while male fans were more likely to consume pornographic content, they tended to preferences toward non-pornographic content or no strong preferences. Put another way, while MLP-themed pornography may be used by some MLP fans, most fans are, first and foremost, interested in MLP-themed content, not on pornography. Coupled with the fact that the vast majority of bronies also indicated that pornography had virtually no influence on

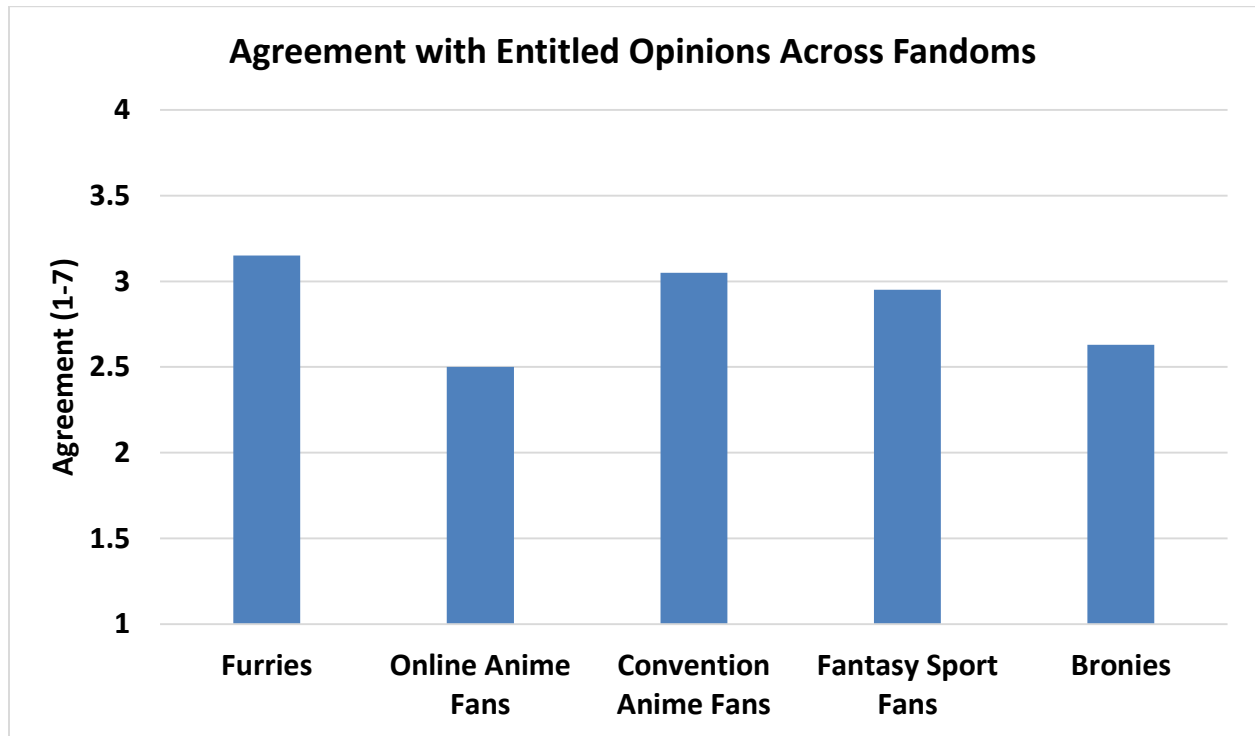
their joining the fandom (Males: 1.58 / 7.00, Females: 1.15 / 7.00), there is little evidence to support the misconception that “brony” is a fetish or an interest driven by sexuality.

### 11. Are MLP fans, as a group, entitled?

Short answer: Not really – they tend to score relatively low on measures of fan entitlement, and, in fact, score lower than most other studied fan groups on such measures.



Long answer: The figure above outlines participants' average agreement with 10 different items assessing fan entitlement, with higher bars indicating more entitlement. In this case, 'entitlement' is intended to mean a belief that, as a fan, one deserves special treatment or accommodation from content producers within the MLP fandom (both fan artists and the show's producers and staff). Even the most highly-agreed upon attitudes (that producers ought to take suggestions from them) scored below the midpoint of the scale.

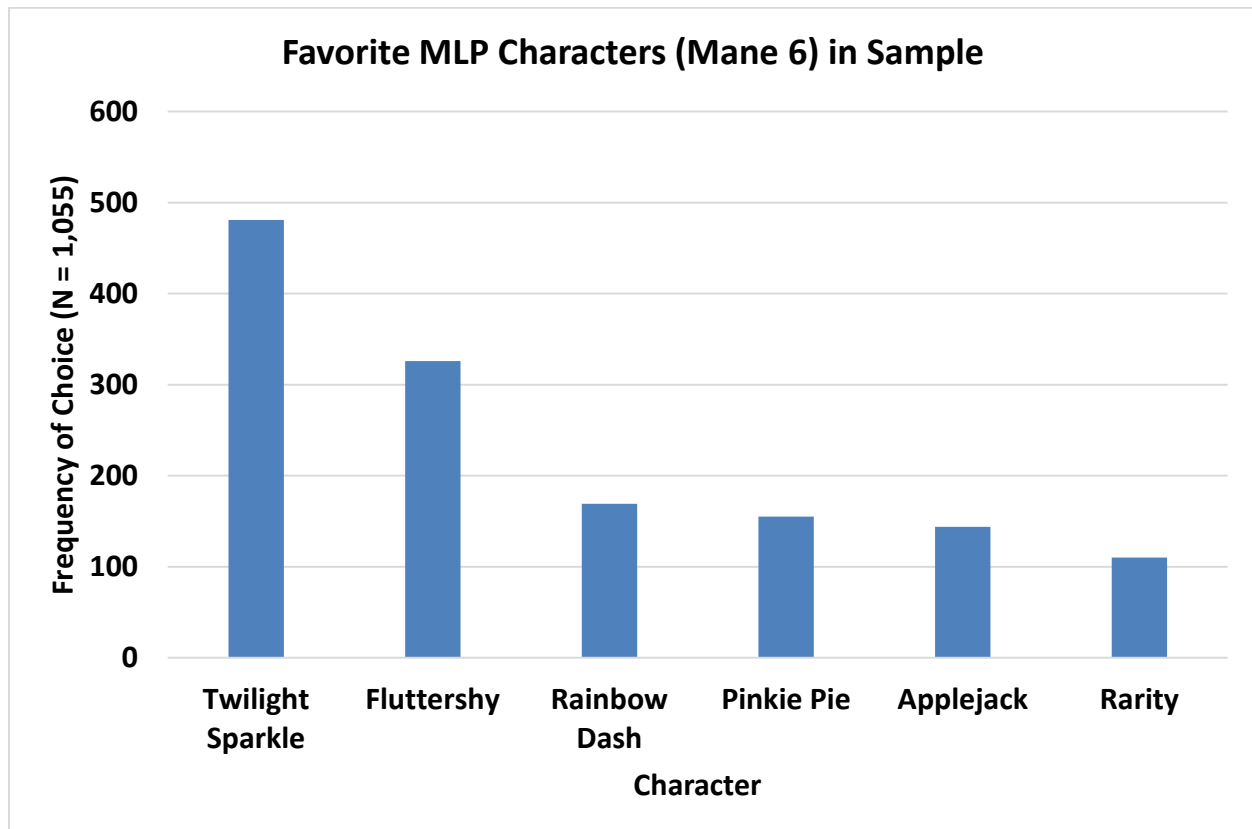


In prior research, our team has given the first 7 items of the same scale to members of other fan communities. To meaningfully compare between samples, we averaged bronies' scores across the first seven items and compared them in the figure above. As a group, bronies scored significantly lower in entitlement than furrries, convention-going anime fans, and fantasy sport fans, though they did score higher in entitlement than online anime fans. In the future, it would be interesting to test whether the positive and pro-social norms of the MLP fandom are at least part of the reason for the fandom's relatively low entitlement scores, and to test whether there are differences in individual bronies' scores that could be accounted for based on whether they've internalized these norms.

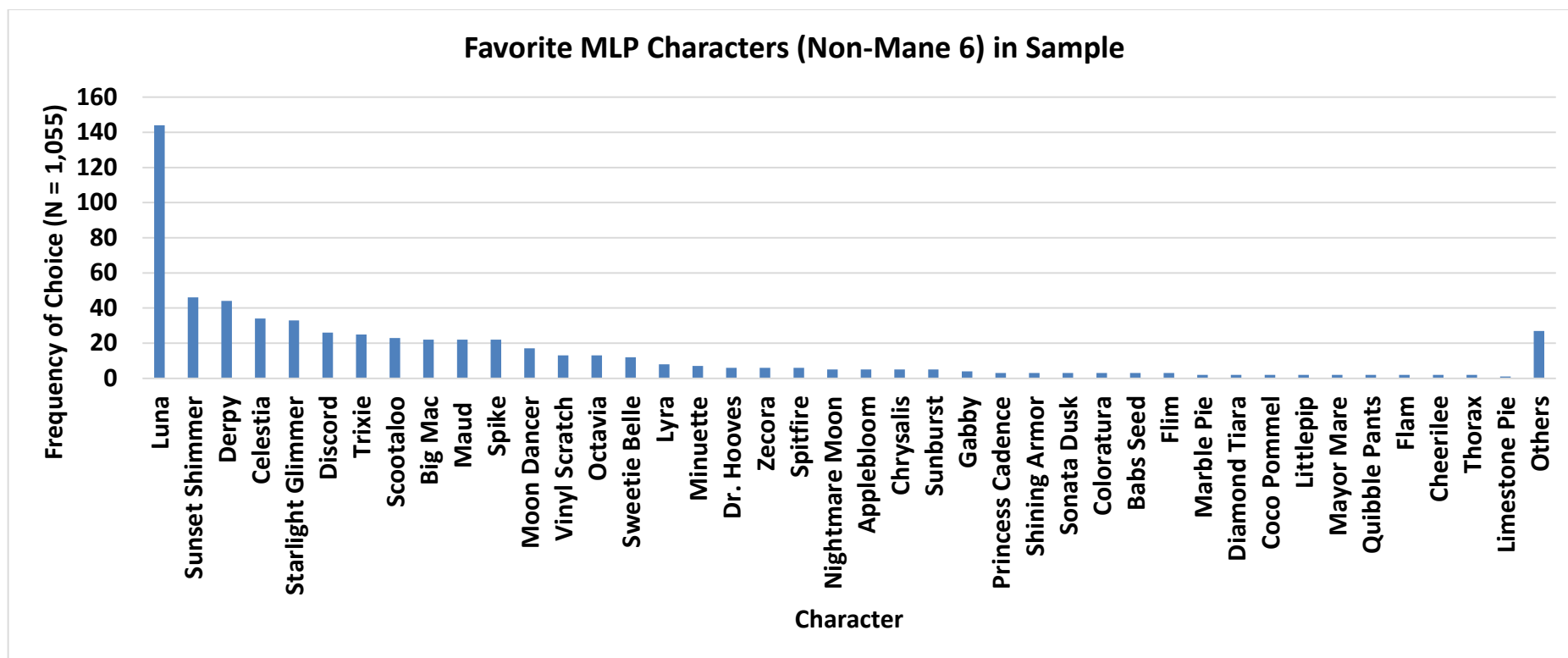


## 12. Who are the fans' favorite characters?

Short answer: In general, the Mane 6 (Applejack, Rarity, Twilight Sparkle, Fluttershy, Pinkie Pie, and Rainbow Dash) are the most frequently chosen favorite characters among fans of the show. Interestingly, the character of Luna is also among the most commonly chosen, and is the only non-main character to be more frequently chosen as a favorite character than a Mane 6 character.



Long answer: To answer this question, we asked participants to write out their favorite MLP characters, giving them the freedom to write as many or as few as they liked. These were tallied up, resulting in a total of 2,001 listed favorites that included 73 different characters. In the figure above, it's clear that Twilight Sparkle was the most frequently chosen as a favorite character: among 1,055 participants, nearly half chose Twilight Sparkle among their favorites. Fluttershy was the second most popular by a considerable margin, while Rainbow Dash, Pinkie Pie, and Applejack were fairly close in their prevalence. Rarity was the least frequently chosen as a favorite character among the Mane 6.



The figure above outlines the prevalence of other characters among fans' favorites. Of note, Luna, a non-main character, was more prevalently chosen than Rarity and was chosen as frequently as Applejack was. It's also worth noting that Littlepip, a character not from the show itself, but from the fan spinoff series *Fallout Equestria*, was also among the characters chosen by at least 2 people (the "others" category includes 26 characters who were only selected by one person). As a final point of interest, despite the fact that Flim and Flam are two characters routinely portrayed together ("Flim & Flam"), Flim appears to be the more popular of the two brothers.

### 13. Does your favorite MLP character say something about your personality?

Short answer: To a small extent, yes, actually. Differences were observed in the personalities of those who chose different Mane 6 characters as being among their favorite, with differences being largely in accordance with the characters' personality in the show. In addition, knowing whether a person included villains and male characters among their favorites can allow us to predict, significantly better than chance, their scores on various demographic and personality variables.

Long answer: To conduct this test, we coded each of the 1,055 participants based on whether or not they identified the Mane 6, Luna, a villain, or a male character among their favorites. To illustrate, if a person said that their favorite characters were Twilight Sparkle and Queen Chrysalis, they would get a score of "1" in the "Twilight Sparkle" category and in the "Villains" category, and a "0" in all other categories. We were then able, category by category, to compare the scores of people who chose that particular character / category to those who didn't on a variety of personality measures. For each of the profiles below, we indicate how people who chose that particular character / category among their favorites differed statistically significantly from those who did not. It should be noted that, in many instances, the personality of people who chose these characters reflects the personality of the characters themselves, although these are only average differences, and should not be taken to mean that **every** person who is a fan of each character **must** necessarily have these traits.

**Applejack:** People who chose Applejack among their favorite characters were more likely to be male than those who didn't. They were the least likely of the categories to be artistic and more strongly identified as a brony than average. They also scored the highest on every measure of well-being, including the highest in self-esteem, the lowest in depression, the lowest in anxiety, and lower than average on social anxiety.

**Twilight Sparkle:** People who chose Twilight Sparkle among their favorites were the most likely to consider themselves to be writers (and to be more likely to write and consume fanfiction). They were more likely than average to say that their favorite character represented who they wished they could be, and were more likely to say that their favorite character was a source of support for them in difficult times. They were more anxious than the average participant, but were also more mature and more strongly identified as bronies.

**Rarity:** People who chose Rarity among their favorites were the most likely to identify as both artists and cosplayers, though they were the lowest-scoring on fandom (being a fan of the show) and fanship (being part of the fan community). They were also the most likely to disclose their MLP interests to others around them and to have personally experienced discrimination for being a brony. They scored highest on a measure of depression, as well as on measures of narcissism (self-absorbed, fragile self-esteem) and Machiavellianism (manipulative of others).

**Fluttershy:** People who chose Fluttershy among their favorites were the most strongly-identified fans of the show, though they were the least likely to experience stigma or discrimination for

being a brony. They scored lower than average on cosplay and were more likely to turn to their favorite character as a source of support during difficult times. They scored the lowest on psychopathy and Machiavellianism, but also the lowest on self-esteem and the highest on anxiety, social anxiety, and depression. They were also less likely than average to view pornography.

**Pinkie Pie:** People who chose Pinkie Pie among their favorite characters were more likely than average to cosplay. They scored the highest on fanship (being part of the community), and scored the lowest on social anxiety. They were also more likely than average to disclose their MLP interests to others, and were more narcissistic than average.

**Rainbow Dash:** People who chose Rainbow Dash among their favorite characters were more likely to be writers and musicians than average, and watched MLP the most frequently and were among the biggest fans of the show. They scored higher than average on fandom (part of the community) and higher on measures of narcissism than average. They were also more likely than average to have personally experienced discrimination for being a brony.

**Luna:** People who chose Luna among their favorite characters were among those who watched the show the least frequently – they were also the least likely to disclose their MLP interests to others. They scored among the highest in depression and were higher than average on anxiety, although they scored the lowest on narcissism. Finally, they were more likely than average to also be a member of the furry fandom.

**Villains:** Those who chose a villain among their favorite characters were more likely than average to cosplay. They scored higher than average on narcissism and Machiavellianism, and were more depressed than average.

**Male Characters:** Those who chose a male character among their favorites were significantly more likely the male themselves. They were less likely than average to be artistic, although they were more likely than average to be bigger fans and to feel closer to the fandom itself.

#### 14. Any last strange or interesting findings?

Yes. Two, in fact. The first finding is a bit straightforward: the longer a brony has been in the fandom, the more likely they are to say that they are nostalgic for the way the fandom “used to be”. This makes intuitive sense, given that a person who has only recently joined the fandom is unlikely to feel nostalgia.

The second finding is more unusual and interesting. In the past, members of our research team have studied furies – people who are fans of media that features anthropomorphic animal characters (e.g., animals that walk and talk, such as the film *Zootopia*). Given that MLP contains anthropomorphized animal characters (e.g., ponies who talk and act like humans), we tested how many furies considered themselves to be bronies. Studies suggest that about 20-25% of furies consider themselves to be bronies.

In the present study, we asked bronies whether they considered themselves to be furies, and found surprisingly similar rates: 19.4% of bronies considered themselves to also be furies. With this in mind, we also asked whether, among those who considered themselves to be furry, it was the case that they were bronies first, and then became furies, or vice-versa. This is because, in the eyes of many furies, bronies are perceived as “invading the fandom”, given that the popularity of MLP has led to many prominent artists creating MLP-themed content. There may, in fact, be some truth to this exaggerated claim: bronies were more than twice as likely to have been bronies first and *then* become furry than to have been furies first and then become bronies.