Chiditarod
Urban Iditarod
Epic Food Drive

The 2016 Sabotage Report

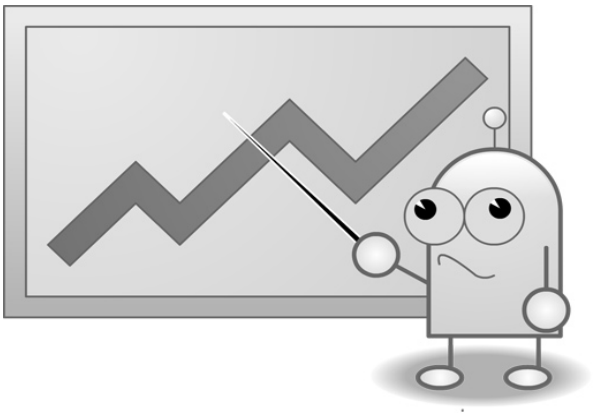
Each winter, the great beast of humanity that is the CHIditarod darkens the streets of northwest Chicago for an entire Saturday, cloaking the town in costumes, charity, and mayhem. All of this is done in the name of fighting hunger in the Chicagoland area and establishing deep, emotional bonds with our local bartenders.

While the baubled regalia of CHIditarod racers inspires the child (and the idiot) in all of us, and the humanitarian efforts of the participants deserves a celebration that only the CHIditarod can contain, it is the position of the race organizers that the *mayhem* component of the annual CHIditarod race and food drive merits closer scientific scrutiny. This is the purpose of the Sabotage Report—a scientific scrutator that contains said scrutinization and science-ness herein. Also pie charts, because pie charts. Sometimes pie.

METHODS (in brief)

- We sent a survey to all racers in the weeks following the 2016 CHIditarod
- 169 racers (or 31% of the 540 who raced in 2016) responded to the survey.
- We generated descriptive statistics for racer demographics.
- We free-coded racer reports of sabotage into nine different sabotage "types."
- We generated binary variables for racer experience, age, and sabotage experience to test the relative frequency within groups using Chi-squared tests.
- We made more pie charts than we needed because we like the pretty colors.
- We used Microsoft Excel and Stata v.14 to do all of our maths and charts.

Questions you may have:

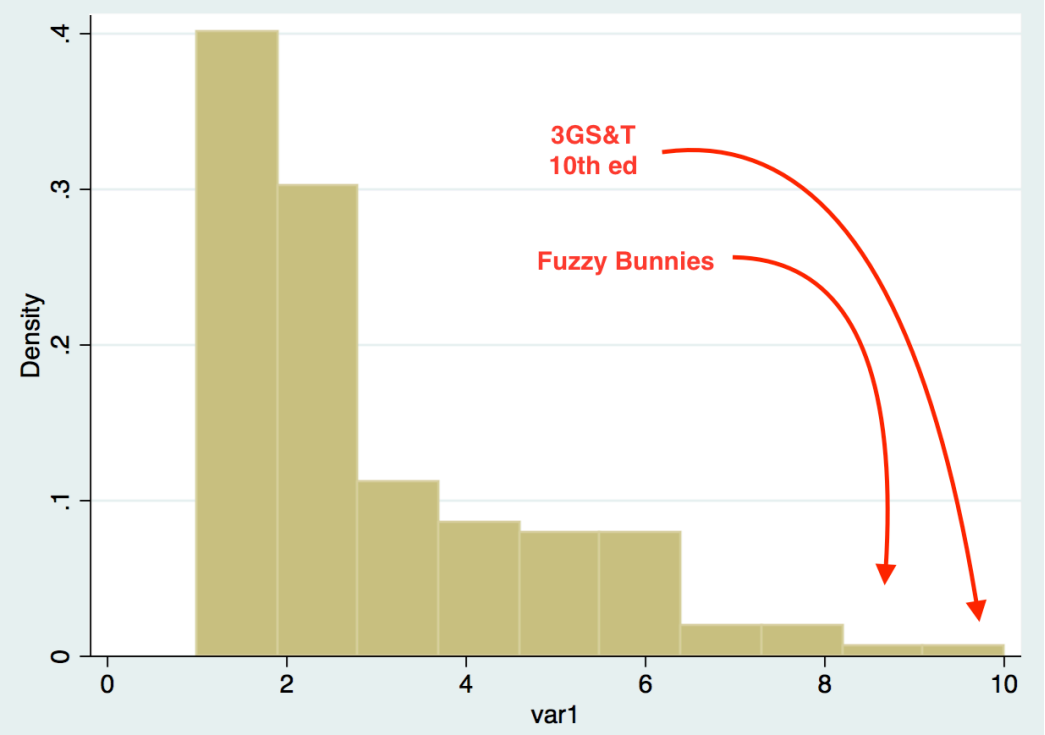


1. **Is this scientific?**
   Mostly.
2. **Do you know how type I error works?**
   We do.
3. **Do you care?**
   Not so much.
4. **How does your survey ask about gender?**
   In our survey, we ask racers to report their gender and leave an open-ended response space where racers can write whatever answer they see fit. We don't specify whether we are asking for assigned gender at birth, gender identity, or any other specific meaning of the word. We let people write whatever they want. This year, we free-coded the following responses as "male": M, male, manish. We free-coded the following responses as "female": female, F, ladyparts. We received one instance "undefined," which we let stand alone in our gender breakdown. Whether any individual who participated in our survey identifies as trans*, genderqueer, or any other non-binary identity (other than that which may have been reflected by "undefined," was not captured by this survey simply because it wasn't reported (and because we didn't specifically ask). If you have questions about our reasoning or if you are a research wiz with some good ideas about how to capture gender in different and meaningful ways in a survey, give us a holler at info@chiditarod.org. We're always interested in ideas for improvement.
5. **CHI-squared-dita-whatnow?**
   Briefly, a Chi-squared test compares two statistical, binary (i.e. "yes" or "no") distributions to each other (in this case all the responses from first-timers and all the responses from experienced racers). The Chi-squared test quantifies how similar or different those two distributions are from each other. This comparison is quantified with a value known as a **risk-ratio**—i.e. the chance that you will dish out sabotage if you are a first-time racer versus the chance that you will dish out sabotage if you are an experienced racer. The Chi-squared test also allows us to calculate how likely it is that increasing the sample size (i.e. having 1,000 survey respondents rather than only 94) would reveal these two distributions to be essentially the same. In other words, the test also calculates how likely it is that any difference that we see between the two groups is spurious, or pure chance. The statistical term for this likelihood is called the **p-value.** (Don't ask me why it's called that. I just work here.) If a p-value is calculated at 0.01, then there is a 1% chance that any difference in the compared distributions is caused by chance based on bias in the sample; if the p-value is 0.5, there is a 50% chance that the difference is pure chance. It is generally accepted that if a calculation has a p-value of 0.05 or less, it is considered "statistically significant." Anything higher than 0.05 means the evidence is considered inadequate to support the conclusion that there is a real difference between the two groups. There is a lot more math behind a Chi-squared test, but this information is all you need to read and make sense of the tables in this report.

RESULTS

Racer experience

The average racer came to the XIth annual CHIditarod with 2.67 years of CHIditarod experience under their belt. Put differently, 61 if 169 respondents, or 36% of racers who participated in this survey, where first time racers. The remaining 64% had at least one previous race under their belts.



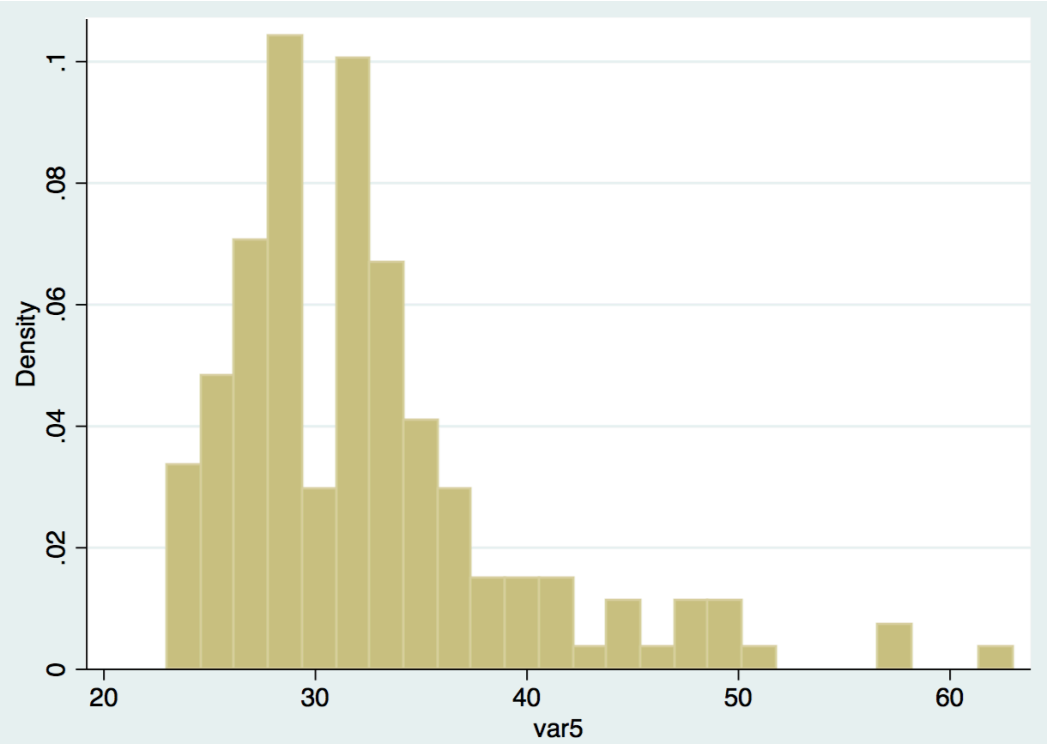
Here is a histogram of racer experience. Amazingly some racers have been with us for 10 years! Happy tin anniversary everyone!

Racer Age

The average age of the 2016 CHIditarod racer was 32.4 years, up just ever-so-slightly from 32.27 in 2015 and 31.5 in 2014. This year, our youngest racer was 23, and our most distinguished racer was 63

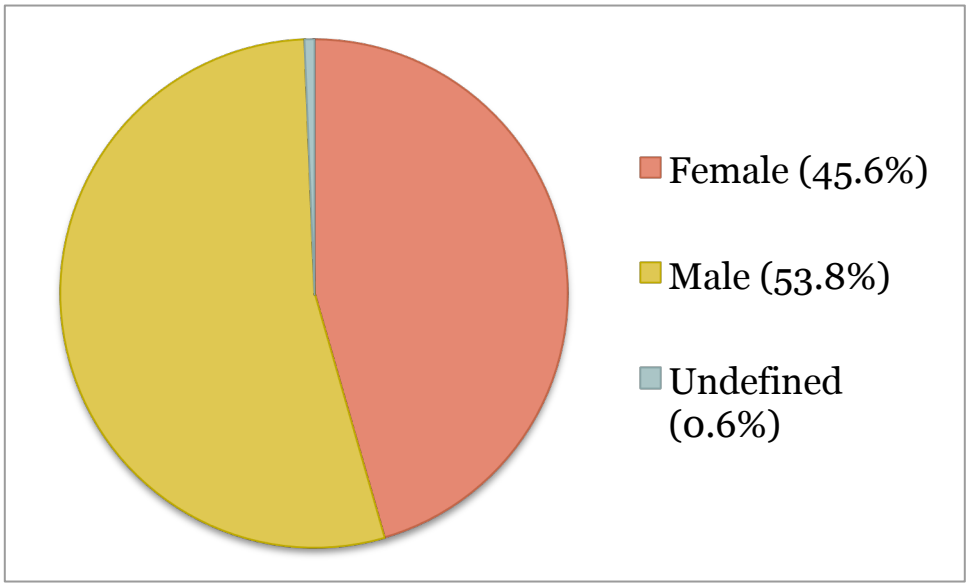
Stats for racer age (in years)	Mean	Min	Max	SD
2016	32.4	23	63	7.00
2015	32.27	22	49	5.72
2014	31.5	21	53	6.06
2013	30.37	21	52	5.47
2012	30.5	21	62	5.82

Here is another histogram showing age distribution among the racers, with the X-axis being labeled in years. Strangely, we had way fewer 30 year olds than we did 29 and 31 year olds. Unless someone can prove that Logan's Run is real, this is doomed to remain a mystery.



Gender

Of our 169 respondents, 91 self-reported as male, 77 self reported as female, and 1 reported as "undefined." In the past, we have always had slightly more female racers than male racers, so this marks the first shift the other way in about a decade.



SABOTAGE

Known Types of Sabotage

Every year, we ask people to describe the sabotage they witnessed or took part in. Using this data, we create a taxonomy of sabotage, breaking the individual acts into discrete categories and calculating the relative frequency of each variety.

This year, survey takers reported the following categories of sabotage:

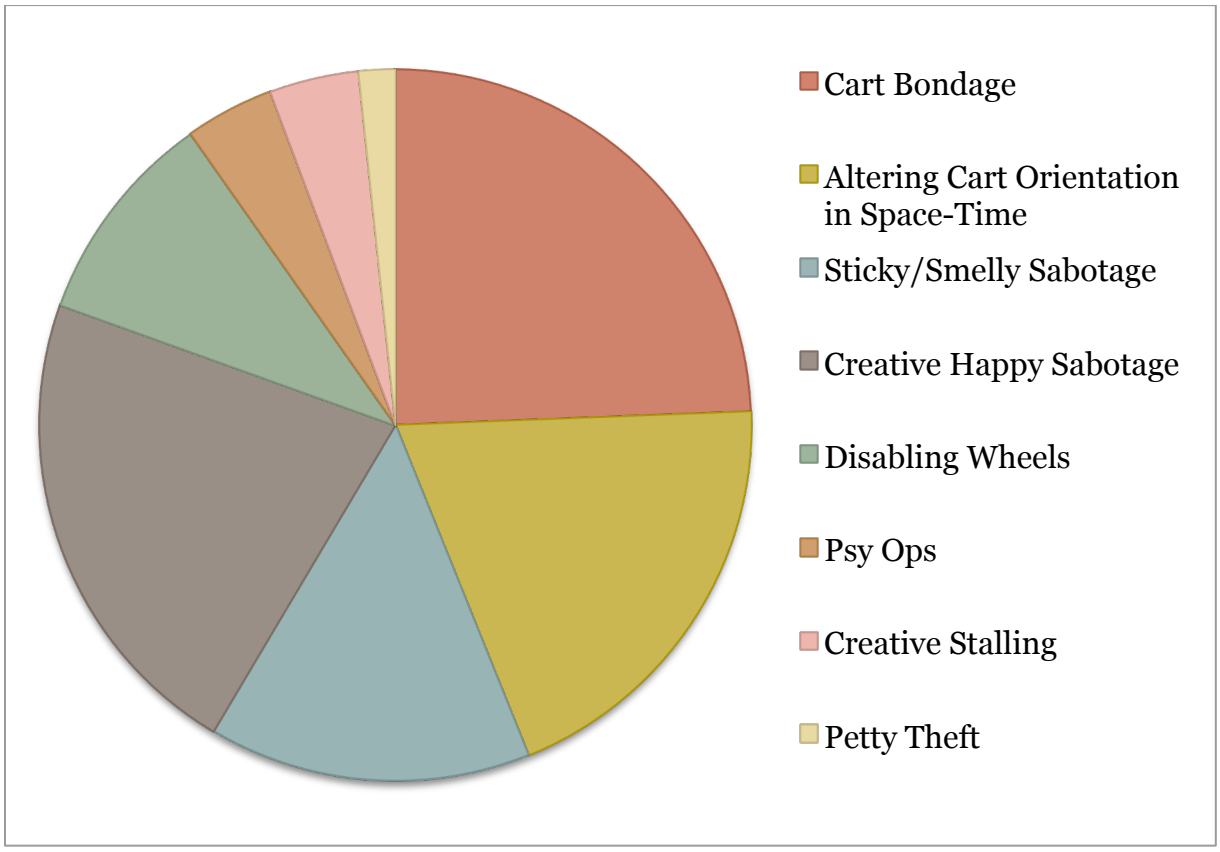
- **Cart bondage** – This includes everything from zip-tying carts together, duct-taping carts to telephone poles, saran wrapping carts, etc.
- **Altering cart orientation in space-time** – The relocating of carts to the back of the bar, the other side of the street, the dumpster, to the second story of the building, etc. Hanging carts from fences and "L" lines also counts.
- **Sticky/smelly sabotage**** – The relocation of peanut butter, molasses, whipped cream, shaving cream, Vaseline, or a variety of other viscous fluids onto your cart or your person.
- **Creative happy sabotage –** Someone has surreptitiously applied glitter, stickers, and My Little Ponies to your cart. Also vandalism, including paint and major re-branding of your cart at the whim of other teams. With the face of David Bowie, perhaps.
- **Disabling wheels** – Applying obscene amounts of duct tape or some other bulky material to shopping cart wheels for the purposes of hindering their movement and making the cart a real pain in the butt to drag along. Great Stuff foam and liquid adhesive also counts.
- **Psy ops –** This is creative sabotage that is intended to trick other teams into thinking that it is to their advantage to violate the rules of the race and/or sending people on wild goose chases. This includes switching around street signs, handing out fake "skip a checkpoint" coupons, etc.
- **Creative stalling –** How can other teams possibly want to continue the race while you are serenading them with Sinatra tune? Or attempting to engage them in vigorous discussions about world politics? Or when you are right in the middle of a D&D campaign?
- **Petty Theft** –** Unfortunately, this has happened a handful of times over the years, so we keep track of the trend. This is rare, fortunately, but does sometimes happen, because some people just suck.

****THESE TYPES OF SABOTAGE ARE BANNED AT THE CHIDITAROD: Though it sometimes happens, teams caught doing these things *are immediately disqualified from the race.* Banned forms of sabotage include: food-based sabotage (i.e. flour, whipped cream, cooking oil); sticky or smelly substances (i.e. Vaporub, Vaseline, shaving cream); chemical or flammable or caustic substances (i.e. smoke bombs, stink bombs, fragrances and perfumes); permanently disabling carts (i.e. removing wheels, locking them with a U-lock); and products that are impossible to clean up (i.e. feathers, glitter, silly string).**

This year, survey takers reported the following incidents of sabotage. This is not a complete survey of all the sabotage that took place at CHIditarod XI, but it does provide a snapshot of what happens and how often it happens relative to other sabotage techniques.

2016 Sabotage	N	%
Cart Bondage	30	24.4%
Altering Cart Orientation in Space-Time	24	19.5%
Sticky/Smelly Sabotage	18	14.6%
Creative Happy Sabotage	27	22.0%
Disabling Wheels	12	9.8%
Psy Ops	5	4.1%
Creative Stalling	5	4.1%
Petty Theft	2	1.6%

In case you are a visual person and/or love pie charts as much as we do, here is that same data again:



Chi squared analyses (Maths! Maths! Marginally reliable maths!)

Every year, we stratify our racer population to look for patterns in the rates of sabotage and bribing that occur. We began doing this in 2011 because we suspected that first time racers were having a harder time anticipating and thus defending themselves against sabotage. Turns out, we were right. In that year, first time racers were nearly 2.5 times as likely as experienced racers to be sabotaged. We used this discovery to change how we share information and to develop new strategies to make sure that first time CHIditarod participants enter The Yard on race day as informed as possible.

Since we are making efforts to improve racer knowledge, encourage sabotage that everyone enjoys participating in, and limit the ability for really unpleasant shenanigans to go down, the patterns of sabotage that we see each year constantly change not only in variety or type of sabotage but in the groups of people most and least likely to participate. For example, the increased likelihood of first time racers to be sabotaged quickly disappeared as we ramped up racer orientation; however, younger racers (those 25 years and under) quickly emerged as sabotage thought leaders, sabotaging more often and more creatively than anyone else in the race. Last year, in 2015, we also found that first time racers we 100% more likely than experienced racers to try to sabotage each other, meaning that young newbies were the sabotage piranhas to watch out for at the 2015 race.

This year, as in past years, we broke down our racer population according to age, gender, and race experience to look for any differences in sabotage and bribing. Here's what we found:

Race experience

In 2016, we found no statistically significant difference between time racers and return racers and the amount of sabotage and bribery that people undertook. Even though the percentages are different (i.e. 44% of first time racers were sabotaged as compared to 33% of return racers), these values simply reflect the raw proportions we measured in the 169 people who responded to our survey. The distributions in these two groups weren't determined to be SO different, however, that we could claim that this difference is real. In other words, the rules of statistics don't provide us with any reason to believe that these percentage differences were anything more than "noise" or "random chance" in the 169 people we polled.

In sum, first timers and experienced racers participated in sabotage equally, and basically everyone bribes judges.

2016 racers who…	First time racers	Return racers	Risk ratio	p-value for the difference in risk	Did science find any measurable different between the two groups?
Were victims of sabotage	43.9%	33.0%	1.33	0.175	No.
Were active saboteurs	22.8%	34.0%	0.67	0.141	No.
Bribed race officials	68.4%	79.0%	0.87	0.140	No.

Gender of racers (by self report)

We also divided our racers up into those self-reported as female and those self-reported as male (we did receive one "undefined" response to our gender question, but that single data point doesn't allow us to include that person in this specific type of statistical analysis).

What we found was that men and women bribed equally and were sabotaged equally, but that men were about 70% more likely than women to actively attempt sabotage against other teams.

2016 racers who…	Male-identified racers	Female-identified racers	Risk ratio	p-value for the difference in risk	Did science find any measurable different between the two groups?
Were victims of sabotage	37.8%	36.5%	1.04	0.865	Definitely no.
Were active saboteurs	36.6%	21.6%	1.69	0.041	Yes yes yes.
Bribed race officials	75.6%	74.3%	1.02	0.853	Definitely no.

Racer age

We'll be honest. This result surprised us. Despite the fact that younger racers have consistently participated more heavily in sabotage than older racers in the past few years, this trend could not be identified in our 2016 survey data. Again, even though the percentages, reported below, are different in our survey data (50% vs 35.5%, e.g.), we weren't able to conclude with confidence that this is anything more than random chance in our data set. In sum, there's no clear difference to be found here.

2016 racers who…	Racers 25yo and under	Racers older than 25	Risk ratio	p-value for the difference in risk	Did science find any measurable different between the two groups?
Were victims of sabotage	50.0%	35.5%	1.40	0.231	No.
Were active saboteurs	44.4%	27.5%	1.61	0.139	No.
Bribed race officials	83.3%	73.9%	1.13	0.385	No.

CONCLUSIONS

- Sabotage evolves every year. Stay on the look-out.
- Remember that consent is sexy. Be creative, have fun, and help your fellow racers have a good time!
- Our racer population is pretty diverse in terms of age and gender, and we are really thrilled about that. We want everyone to feel comfortable joining us and going all-out on race day.
- Some of you have been racing with us for so long! THANK YOU! We love you back!