

Greek Life Participation by Athletes

Introduction:

Each year, there are about 16.7 million students enrolled in undergraduate programs in the United States¹. These students come from all different backgrounds and experiences, but for many, the college experience is not just about classes – it is about the social experience. One key part to the social experience at most United States universities is Greek life. Since the introduction of the first social fraternities in the late 1700's, over 9 million² students have joined social fraternities, with that estimate growing when professional and multi-cultural fraternities are also added. But are there traits that cause some students to join Greek life at a higher rate than others? In particular, are students who were athletes in high school more likely to join Greek life than non-athletes?

Data:

To analyze the relationship between high school athletics and joining Greek life, the 2001 Harvard School of Public Health College Alcohol Study³ will be used. This study is a multi-round survey that interviewed full time undergraduate students at 4-year universities in the United States. The main purpose of this study was to examine the key issues in alcohol abuse and other risky behaviors for all undergraduate students in the United States that attend 4-year universities. Along with addictive habits, this questionnaire covers many topics, including difficulties caused by drinking and other substances, gender, high school athletics, age, height, weight, parent's education, race, Greek life participation, etc.

This survey was designed as a two-stage sample. The sampling units of 119 4-year universities were randomly selected from all 4-year universities in the United States. Then a random sample of undergraduates at each selected university was taken, with the proportion of students selected in each university being equal. From these 119 universities, a total of 10,904 undergraduates were surveyed. Responses were collected by mailing questionnaires to students who were selected, with follow up contact conducted until the surveys were returned.

Results:

Since the dataset contained many different variables of interest, to answer the question if high school athletics participation causes students to join Greek life at a higher rate, only a subset of the data will be used. The variables of interest are the participation in Greek life – which took on a value of 1 if yes and 0 if no – and participation in high school athletics – which took on the values of 1 if they did not participate, 2 if they played on varsity and 3 if they played some but did not play on varsity. When constructing this subset, only 10,453 observations could be used due to nonresponse.

To answer this question, a few different estimates were found – percentage of varsity athletes who join Greek life, percentage of junior varsity athletes who join Greek life, percentage of non-athletes who join Greek life, and percentage of all students who join Greek life. To find these estimates, poststratification methods were utilized. The reason for these methods to be utilized is since the survey was not conducted with these variables and groups in mind, the stratum were created after the survey was collected. The following are the point estimates that were found:

$$\hat{p}_{Varsity} = 16.15\%$$

$$\hat{p}_{JV} = 10.53\%$$

$$\hat{p}_{Non-Athlete} = 8.10\%$$

$$\hat{p}_{All\ Students} = 12.50\%$$

Along with the above point estimates, the standard error for the percentage of all undergraduate students in the United States that join Greek life is 0.321% with a 95% confidence interval for the true percentage of students who join Greek life as between 11.87% and 13.13%. The overall percentage of students who join Greek life was found using the following formula:

$$\hat{P}_{All} = \sum_{i=1}^h \frac{N_h}{N} \hat{p}_i$$

Where the \hat{p}_i 's are the percentages for the 3 strata of varsity athletes, junior varsity athletes, and non-athletes. Since the true number of all undergraduates in the US and the true number of students who fall into each group is unknown, the $\frac{N_h}{N}$ for each group was able to be estimated using the sample size and the sample size from each stratum. This estimation was able to be used since the sample was large and thus can be assumed to be approximately equal to the true value for $\frac{N_h}{N}$.

From the above results, it is shown that the estimate for the percent of all undergraduate students who join Greek life is 12.5%, with varsity high school athletes having the highest percent of students joining Greek life at a rate of 16.15%. This joining rate is almost two times higher than the joining rate of non-athletes – which is 8.1%.

Assessing Methodology:

The 2001 Harvard School of Public Health College Alcohol Study appropriately used a two-stage sampling method to look at the effects of alcohol on college students in the United States. However, for the intended research question of the effect of high school sports participation on joining Greek life, a different form of two-stage sampling could have created more accurate responses.

While most universities in the United States have Greek life, there are many universities that have completely removed Greek life from the college experience. In the sample, the 119 universities were chosen from all 4-year universities in the United States, but not all of these

universities have Greek life. If the sample were to be retaken, the first stage of the sample would be to choose a set number of 4-year universities from all universities in the United States that do have Greek life. The second stage of the sample would then be the same as the original sample, with the proportion of students selected from each university being the same between all universities in the sample.

Another thing that could be changed to increase the accuracy of the results would be to ask a few more in-depth questions. The original categories of sports participation and participation in Greek life could be broken down into more specific categories. For example, there are three types of Greek life – Social, Professional, and Multi-Cultural – and the original questionnaire just asked about Greek life in general, so the responses in the resampled set could ask the students why kind of Greek life they participate in.

There are two forms of non-sampling error present in the dataset. The first error is selection bias that was caused by over coverage. Since the sample could have contained universities that do not have Greek life, there were units in the sample that did not belong to the target population of undergraduates at 4-year universities with Greek life in the United States. Another form of non-sampling error that may have occurred is measurement error. This results from the generalness of the Greek life question asked to the students. Since the question was not specific about the type of Greek life, some students may have said no when they really belong to a Professional or Multi-Cultural fraternity. There was also a nonresponse rate of about 4.2%, however, since they were randomly spread between response types and students it did not cause any nonresponse error.

Conclusion:

Using the 2001 Harvard School of Public Health College Alcohol Study, a relationship between high school athletics and Greek life participation was found using poststratification methods. Of all the undergraduate students in the United States at 4-year universities, it is estimated that those who played on a varsity sports team in high school are two times more likely to join Greek life than those who did not play any sports. Overall, it is estimated that 12.5% of all students will join Greek life at some point in their college careers.

References:

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