**Supplementary Appendix for “Playing with Pain: Social Class and Pain Reporting among College Student-Athletes”**

1. **Survey Implementation and Sample**

Our ideal population is all college student athletes. We opted to focus on a single major NCAA Division I conference for two reasons. First, we are unaware of an available list of contact information for all NCAA student-athletes, which means that we had to obtain contact information by visiting each school’s website, identifying student-athletes, and obtaining their e-mail addresses. Practical concerns about time and resources prevented us from drawing a random sample from the more than 170,000 student-athletes who participate on one of the more than 6,000 Division I teams (from roughly 350 schools; <http://www.ncaa.org/about?division=d1>). Second, these constraints meant one approach could have been to randomly select schools and then sports, and then student-athletes (or to target all student-athletes from a selected team given time constraints of searching for rosters and then e-mails). We opted to not take this approach as we wanted to ensure a sufficient number of student-athletes from all sports since we suspected the injury rate of the sport could have affected our outcomes. For these reasons, we opted to focus on a single Division I conference – the Big Ten – where our sampling frame could be the universe of student-athletes with publicly available contact information. Our population is thus Big Ten student-athletes.

 The Big Ten Conference includes 14 major research universities located in the Midwest and Eastern parts of the country. We believe this conference is a strong starting point as it includes a large amount of variance among universities and includes schools that recruit nationally and internationally. Our focus on a single conference also follows other studies of student-athletes (e.g. Druckman et al., 2014; Fountain & Finley, 2009). That said, we also recognize that the Big Ten may differ from other conferences/schools due to having relatively rigorous academic standards. This reality may mean that class differences are accentuated more at these schools relative to others.

In the winter of 2016, we accessed the athletic websites of all the Big Ten schools and obtained the full rosters for all sports at every school. We then accessed each school’s website to locate and record the email address (and sport and gender) of every student-athlete listed on those rosters. This information was publicly available at all schools except for the University of Nebraska and the University of Maryland. These two schools thus are excluded from our sample. Overall, we located 7,977 names on rosters (which we believe is the full population of Big Ten student-athletes at the time, from all but the two schools). We found no e-mails for 788 student-athletes and subsequently we sent out 7,189 e-mails. Of them, 1,678 bounced back as no longer in service (which could be due to the students no longer being enrolled, database errors, website errors, or some other reason). Thus, we successfully sent (on March 30th, 2016) a total of 5,511 e-mails that, to our knowledge, reached their intended targets. We also sent out one reminder (on April 4th, 2016) to all respondents. The invitation letter (and the reminder) asked the student-athletes to participate in a survey aimed at understanding student-athletes’ opinions and experiences. They were directed to an encrypted link and assured of anonymity.

In the end, we received 1,615 responses leading to response rate of 1615/5511 = 29.3%. This rate exceeds the typical response rate in e-mail surveys of this length, especially those that do not employ incentives (see Couper, 2008; Ritter & Sue, 2007: 36; Shih & Fan, 2008 for discussion of typical response rates in similar surveys). Tables A-1 and A-2 report the percentages of our sample from each school and sport. Sample size varied across schools due to variations in the number of sports each school sponsors. As explained in the text, we weighted all of our analyses so that our sample approaches population figures on gender, sport, and school (obtained from our download of the rosters).

**Table A-1. Sample Composition by University (Weighted)**

|  |  |  |
| --- | --- | --- |
| **School** | **Percent of Sample** | **Percent of Population** |
| Illinois | 5.66% | 6.09% |
| Indiana | 7.16% | 7.99% |
| Iowa | 7.92% | 8.22% |
| Michigan | 10.29% | 10.24% |
| Michigan State | 8.60% | 8.95% |
| Minnesota | 8.70% | 8.89% |
| Northwestern | 6.96% | 6.12% |
| Ohio State | 10.56% | 10.49% |
| Penn State | 9.77% | 9.62% |
| Purdue | 6.34% | 6.52% |
| Rutgers | 7.86% | 7.31% |
| Wisconsin | 10.00% | 9.55% |

**Table A-2. Sample Composition by Sport (Weighted)**1

|  |  |  |
| --- | --- | --- |
| **Sport** | **Percent of Sample** | **Percent of Population** |
| Baseball | 4.08% | 4.43% |
| Basketball |  3.58% |  4.21% |
| Cross Country |  8.56% |  6.61% |
| Fencing |  1.76% |  1.59% |
| Field Hockey |  2.65% |  2.24% |
| Football |  18.82% |  16.64% |
| Golf |  2.74% |  2.81% |
| Gymnastics |  3.12% |  3.06% |
| Ice Hockey |  3.51% |  3.13% |
| Lacrosse |  4.96% |  4.46% |
| Lightweight Rowing |  0.83% |  0.66% |
| Pistol |  0.14% |  0.13% |
| Rifle |  0.15% |  0.18% |
| Rowing |  7.70% |  6.62% |
| Soccer |  5.93% |  6.59% |
| Softball |  3.51% |  3.10% |
| Swimming and Diving |  12.38% | 8.81% |
| Synchronized Swimming |  0.50% |  0.35% |
| Tennis |  2.72% |  2.85% |
| Track and Field |  15.19% |  14.04% |
| Volleyball |  2.65% |  2.32% |
| Water Polo |  0.38% |  0.29% |
| Wrestling |  5.55% |  4.88% |
| Other Sport |  0.18% | 0.00% |

1Of the total who participate in either cross-country or track, 54%(weighted) do both. Otherwise, less than 1% of the sample participates in more than one sport.

1. **Question Wording**

What University do you attend?

|  |  |  |  |
| --- | --- | --- | --- |
| ☐ Indiana University | ☐ Ohio State University | ☐ University of Illinois | ☐ University of Minnesota |
| ☐ Michigan State University | ☐ Purdue University | ☐ University of Iowa | ☐ University of Wisconsin |
| ☐ Northwestern University | ☐ Pennsylvania State University | ☐ University of Michigan | ☐ University of Nebraska  |
| ☐ Rutgers University | ☐ University of Maryland |

Which sport(s) do you or did you play at a varsity level this past academic year? (If you played on multiple varsity sports teams, select all teams on which you played.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ☐ Baseball | ☐ Fencing | ☐ Lacrosse | ☐ Softball | ☐ Volleyball |
| ☐ Basketball | ☐ Field hockey | ☐ Lightweight Rowing | ☐ Swimming | ☐ Water polo |
| ☐ Beach Volleyball | ☐ Football | ☐ Pistol | ☐ Synchronized Swimming | ☐Wrestling |
| ☐ Bowling | ☐ Golf | ☐ Rifle | ☐ Tennis | ☐Other |
| ☐ Cross country | ☐ Gymnastics | ☐ Rowing | ☐ Track and Field |  |
| ☐ Diving | ☐ Ice Hockey | ☐ Soccer |  |

Are you male or female?

*Male Female*

Which of the following do you consider to be your primary racial or ethnic group (*you may check more than one*)?

*White African American Asian American Hispanic Native American Other*

What is your current year in school?

# *First year Sophomore Junior Senior Graduate student N/A*

What is your estimate of your family’s annual household income (before taxes)?

*< $30,000 $30,000 - $69,999 $70,000-$99,999 $100,000-$200,000 >$200,000*

What is the highest level of education completed by one of your parents? (Think about the parent who has received the highest level of education.)

*Less than high school High school Some college 4 year college degree Advanced degree*

Are you on a full or partial scholarship?

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

*No Scholarship Full Scholarship Partial Scholarship (including partial tuition and/or book scholarship)*

If you have a scholarship, is it for academics and/or for athletics?

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

*No Scholarship Academic Scholarship Athletic Scholarship Both (mix of Academic and Athletic)*

We are next going to ask you to imagine a hypothetical scenario and then we will ask you some questions about it. Do your best to imagine this actually occurred.

*Imagine that you sustained an injury at the start of your team’s season. There is not a strict protocol for how long it will take to return to play. Your team’s medical personnel expect you to make a full recovery; however, they predict you will miss practice and competition for at least 4 and up to 8 weeks.*

If you had experienced the described injury, how painful do you think the initial injury would be?

*Not Slightly Moderately Extremely*

*painful painful painful painful*

If you had experienced the described injury, how painful do you think the recovery process would be?

*Not Slightly Moderately Extremely*

*painful painful painful painful*

There are many reasons why people choose to report or not report pain. Given your personal preferences and situation, if you had experienced the described injury, would you report your pain to medical personnel?

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

*Yes No*

Even when reporting pain, there are many reasons why people choose to under-report or over-report their pain. Given your personal preferences and situation, do you think that you would under-report, accurately report, or over-report your pain from the described injury to medical personnel?

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

*Under-report          Under-report          Accurately report    Over-report             Over-report*

*A lot                         a little                                                      a little                      a lot*

If you had experienced the described injury, how much pain do you think you would be able to tolerate (i.e., live with, without having to delay rehabilitation processes)?

*Very low Somewhat low Somewhat high Very high*

*tolerance tolerance tolerance tolerance*

Do you think you would have no desire at all or great desire to return to play?

*No desire at all Not much desire a moderate desire a good deal of desire a great desire*

How much anxiety do you think you would have due to the injury and recovery process?

*None at all A little A moderate A good A great deal*

 *amount amount*

Please rate the extent to which you think your coaches would be disappointed if you did not return quickly (e.g., in 4 weeks rather than 8 weeks).

*Not disappointed Slightly Moderately Very Extremely*

*at all disappointed disappointed disappointed disappointed*

Please rate the extent to which you think your family and friends would be disappointed if you did not return quickly (e.g., in 4 weeks rather than 8 weeks).

*Not disappointed Slightly Moderately Very Extremely*

*at all disappointed disappointed disappointed disappointed*

How hard do you think your life has been?

*Not A little Somewhat Extremely*

*At all*

If you were asked to use one of five names to describe your social class, which would you say: the lower class, the working class, the middle class, the upper middle class, or the upper class?

*lower class working class middle class upper middle class upper class*

How unimportant or important do you think your performance as a college athlete is to your success after college?

*Very Somewhat Somewhat Very*

*unimportant unimportant important important*

1. **Additional Analyses (Specific Class Effects and Mediation)**

Table A-3 replicates the analyses in the second two columns of Table 1, although instead of using a single variable for class, it breaks out each individual class, using upper middle class (the largest class) as the benchmark. Table A-4 also replicates the analyses in the second two columns of Table 1, but adds the mechanism variables. We discuss the results in the text – notably, class becomes insignificant in the reporting pain regression which is suggestive that it is mostly mediated by anxiety and family expectations.

**Table A-3: Specific Class Effects**

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
|  | Reporting Pain | Amount of Pain Reported |
|  |  |  |
| Athletic Scholarship | -0.368\*\*\* | -0.237\*\*\* |
|  | (0.104) | (0.075) |
| Female | -0.044 | -0.042 |
|  | (0.101) | (0.071) |
| Black | -0.014 | -0.069 |
|  | (0.192) | (0.144) |
| Year in School | 0.034 | -0.001 |
|  | (0.042) | (0.030) |
| Income | -0.006 | -0.062 |
|  | (0.060) | (0.045) |
| High Injury Sport | -0.103 | -0.056 |
|  | (0.099) | (0.073) |
| Lower Class | -0.552 | -0.595\* |
|  | (0.416) | (0.327) |
| Working Class | -0.494\*\* | -0.374\*\* |
|  | (0.213) | (0.192) |
| Middle Class | -0.238\* | -0.061 |
|  | (0.133) | (0.091) |
| Upper Class | -0.036 | 0.188 |
|  | (0.187) | (0.135) |
| Cut Point 1 | – | -1.709\*\*\* |
|  |  | (0.222) |
| Cut Point 2 | – | -0.128 |
|  |  | (0.219) |
| Cut Point 3 | – | 1.137\*\*\* |
|  |  | (0.218) |
| Constant | 1.302\*\*\* |  |
|  | (0.302) |  |
|  |  |  |
| Observations | 1,361 | 1,336 |

Model 1 is a probit and model 2 is an ordered probit. Standard errors in parentheses; \*\*\* p≤0.01, \*\* p≤0.05, \* p≤0.1 for two-tailed tests.

**Table A-4: Mediation**

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
|  | Reporting Pain | Amount of Pain Reported |
|  |  |  |
| Class | 0.143 | 0.128\*\* |
|  | (0.087) | (0.064) |
| Athletic Scholarship | -0.322\*\*\* | -0.183\*\* |
|  | (0.105) | (0.076) |
| Female | -0.011 | -0.035 |
|  | (0.102) | (0.074) |
| Black | 0.000 | 0.009 |
|  | (0.200) | (0.138) |
| Year in School | 0.034 | 0.016 |
|  | (0.045) | (0.030) |
| Income | -0.023 | -0.070 |
|  | (0.061) | (0.046) |
| High Injury Sport | -0.123 | -0.043 |
|  | (0.103) | (0.075) |
| Sport Importance | -0.103 | -0.041 |
|  | (0.063) | (0.043) |
| Desire | 0.055 | -0.064 |
|  | (0.064) | (0.049) |
| Anxiety  | -0.211\*\*\* | -0.017 |
|  | (0.076) | (0.048) |
| Hard Life | 0.041 | -0.017 |
|  | (0.070) | (0.052) |
| Pain Tolerance | -0.078 | -0.211\*\*\* |
|  | (0.085) | (0.061) |
| Coaches Expect | -0.030 | -0.112\*\*\* |
|  | (0.052) | (0.034) |
| Family Expect | -0.083\*\* | 0.007 |
|  | (0.041) | (0.032) |
| Cut Point 1 | – | -2.718\*\*\* |
|  |  | (0.441) |
| Cut Point 2 | – | -1.100\*\* |
|  |  | (0.431) |
| Cut Point 3 | – | 0.178 |
|  |  | (0.426) |
| Constant | 1.970\*\*\* |  |
|  | (0.599) |  |
|  |  |  |
| Observations | 1,335 | 1,311 |

Model 1 is a probit and model 2 is an ordered probit. Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 for two-tailed tests.

**Appendix References**

Couper, M. P. (2008). *Designing effective web surveys*. New York, NY: Cambridge University Press.

Druckman, J. N., Gilli, M., Klar, S., & Robison, J. (2014). The role of social context in shaping student-athlete opinions. *PLoS ONE*, *9*(12), e115159.

Fountain, J. J., & Finley, P. S. (2009). Academic majors of upperclassmen football players in the Atlantic Coast Conference: An analysis of academic clustering comparing white and minority players. *Journal of Issues in Intercollegiate Athletics*, *2*(1), 1–13.

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