**PSYC234: Lecture 5 – Binomial test: post-lecture worksheet**

This worksheet is to help you consolidate what you learned about the binomial test during Lecture 5. It contains two activities.

This worksheet could be completed as part of the independent study hours for PSYC234. **It is optional but recommended**. **It is recommended that you complete this worksheet in advance of the WBA.**

Once you have finished, compare your answers to theanswer sheet provided on Moodle. You can also use this sheet and the answer sheet for revision purposes when preparing for the class test.

Activity 1: One sample-test or binomial test?

For the following examples, write down whether you think the test conducted should be a one-sample t-test or a binomial test.

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| **Research design** | **Test that should be conducted** | **Why do you think this?** |
| You are the coach of a football team. You are interested in whether the running distance of your players significantly differs from the England national football team. You know, on average, England football players run 10km per game. |  |  |
| You are the coach of a football team. You are interested in whether the proportion of games your team scores a goal is significantly different from that of the England national team. You know that on average, the England national team scores a goal in 60% of games. |  |  |
| You are a university lecturer. You decide to introduce post-lecture worksheets to help students to consolidate knowledge learned during lectures. You are interested in whether the proportion of students passing the class test differs between this year and last year. You don’t have individual marks for last year’s students, but you do know that 74% of the last year’s cohort passed the class test. |  |  |
| You are a university lecturer. You decide to introduce post-lecture worksheets to help students to consolidate knowledge learned during lectures. You are interested in whether the score on the class test differs between this year and last year. You know that last year, the average mark on the class test was 62%. |  |  |
| You are a neonatal doctor (a doctor who specialising in caring for newborn babies). You think that babies born in your hospital are quite small. You are interested in whether the proportion of babies who are classed as “small for gestational age” differs between your hospital and the UK average (10%). |  |  |
| You are a neonatal doctor (a doctor who specialising in caring for newborn babies). You think that babies that are born in your hospital are quite small. You are interested in whether the average weight of babies born at your hospital is significantly less than the UK average (3350g). |  |  |

*Disclaimer: All data is made up (and these estimates may be utterly ridiculous!)*

Activity 2: Identifying “success”

The binomial test is appropriate for the following research designs. Identify which outcome would be classed as success and which outcome would be classed as failure. If you are confused what classes as success, refer back to the lecture slides/recording.

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| Design | Success | Failure |
| You are a lecturer interested in whether the proportion of students passing your module differs from your colleague’s module. 82% of students (or 0.82 expressed as a proportion) pass your colleague’s module. |  |  |
| You are the headteacher of a grammar school which has an entrance exam. You are interested in whether the proportion of children failing the test differs significantly from last year. The failure rate last year was 24% (or 0.24 expressed as a proportion). |  |  |
| You are a teacher. You are interested in whether the proportion of students in your class with special educational needs and disabilities (SEND) significantly differs from the year group average (27%, or 0.27 expressed as a proportion). |  |  |
| You have developed a new flu vaccine. You are interested in whether the proportion of people who develop side effects after your vaccine differs from the flu vaccine currently used by the NHS (37%, or 0.37 expressed as a proportion). |  |  |