

Calculating Confidence Intervals (CI)

The following study example relates to both sections 1 and 2 below. Please read through the study example and then answer the questions in each section.

Researchers interested in studying the effect of inherited bleeding disorders on pregnancy and childbirth collected data from a sample of 64 women registered at a single haemophilia centre in London. The women were asked questions relating to their bleeding disorder and their first pregnancy (or current pregnancy if this was their first one).

Section 1: Confidence interval for the mean

Objective: Determine the mean age at first birth in women who have bleeding disorders. A sample of 49 of the women from the study was taken, which revealed:

Mean age of woman at birth of child = 27.01 years

Standard Deviation = 5.1282 years

First, calculate the Standard Error of the Mean (SEM) – show your working below:

The variable is approximately normally distributed but because the population variance is unknown, you need to use the t-distribution to calculate the Confidence Interval (CI).

Using the ‘Critical Values of t’ (or ‘t-distributions’) table in the Appendix of any of your stats books, please calculate the Confidence Intervals (CI) for the above study here and show the workings of your calculations:

Write out the interpretation of your calculations as you would for a report:

Section 2: Confidence interval for the proportion

Of the 64 women in the study, 27 (42.2%) reported that they experienced bleeding gums at least once a week. This is a relatively high percentage and may provide a way of identifying undiagnosed women with bleeding disorders in the general population.

Calculate the 95% Confidence Interval (CI) for the proportion with bleeding gums in the population. Show your workings and write-up your calculations as you would for a report:

References:

Example questions taken from Petrie, A., & Sabin, C. (2000). *Medical Statistics at a Glance*. Blackwell Science Ltd.