

Types of Variables

Independent variable	Variable that a researcher changes. <i>e.g. application of fertilizer x in this experiment</i>
Dependent variable	Variable affected by change in the independent variable. <i>e.g. plant growth, number of leaves, number of fruits etc.</i>
Nominal variable (≡ Categorical variable)	Named variables <i>e.g. place of residence; gender; political preferences</i>
Ordinal variable (≡ Discrete variable)	Named + ordered variables <i>e.g. grades, satisfaction, happiness</i>
Interval variable	Named + ordered + proportionate interval between variables <i>e.g. temperature, time, calendar years, income</i>
Ratio variable	Named + ordered + proportionate interval between variables + can accommodate absolute zero <i>E.g. What is your daughter's current height? (<5 ft, 5'1-5'5, 5'6-6, >6')</i>
Continuous variable (means, normal distribution)	Any value within a range of values (fractions, decimals...).
Discrete variable (≡ Ordinal variable) (medians, skewed, non-normal,)	Whole numbers (integers). <i>e.g. ranks, scores</i>
Categorical variable (proportions, dichotomous, binomial)	Qualitative values representing one of a finite number of categories. <i>e.g. species (possible values: human, dolphin...)</i>
Binary Response variable	A response variable that has only two possible outcomes. <i>e.g. patient rejects kidney = 1, patient does not reject kidney = 0</i>
Random variable	Assigns a number to every outcome in the sample space of an experiment. <i>e.g. in the experiment of a coin toss, a random variable may assign 1 to heads or 0 to tails.</i>
Response variable (Y) (≡ Outcome variable)	The variable being modeled or predicted. <i>E.g. student's grade</i>
Predictor variable (X) (≡ Exposure variable)	The variable used to predict the response. <i>E.g. hours a student spends studying</i>
Standardized variable	A variable that has been adjusted to mean = 0, standard deviation = 1.