

What is the importance of Statistics in Psychology (With Examples)?

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Statistics is an important tool used by psychologists to analyze data and draw conclusions. It helps psychologists to understand and make sense of the data they have collected. Statistics allow for the testing of hypotheses, evaluation of the magnitude of effects, and comparison of different results. Examples of statistics used in psychology include correlation, regression, and t-tests which help to determine the relationship between variables, the strength of the relationship, and the level of significance.

The field of **statistics** is concerned with collecting, analyzing, interpreting, and presenting data.

In the field of psychology, statistics is important for the following reasons:

Reason 1: Descriptive statistics allow psychologists to summarize data related to human performance, happiness, and other metrics.

Reason 2: Regression models allow psychologists to quantify the relationship between variables related to human performance, happiness, and other metrics.

Reason 3: Hypothesis tests allow psychologists to compare the effectiveness of different methods, techniques, and procedures on human performance, happiness, and other metrics.

In the rest of this article, we elaborate on each of these reasons.

Reason 1: Using Descriptive Statistics to Summarize Data

are used to *describe* data.

Psychologists often use descriptive statistics to summarize data related to individuals.

For example, an might calculate the following descriptive statistics for individuals who work at a certain company:

Overall satisfaction with salary (e.g. scale of 1-7)

Overall satisfaction with workplace culture

Overall satisfaction with working hours

Using these metrics, an I/O psychologist can gain a better understanding of how satisfied employees are at the company.

They can then use these metrics to inform the organization on areas that could use improvement to make the workplace a more enjoyable environment for the employees.

Reason 2: Using Regression Models to Quantify the Relationship Between Variables

Another way that statistics is used in psychology is in the form of .

These are models that allow psychologists to quantify the relationship between one or more predictor variables and a .

For example, a psychologist may have access to data on total hours spent exercising per day, total hours spent working per day, and overall happiness (e.g. scale of 0-100) of individuals.

$$\text{Happiness} = 76.4 + 9.3(\text{hours spent exercising per day}) - 0.4(\text{hours spent working per day})$$

Here's how to interpret the in this model:

For each additional hour spent exercising per day, overall happiness increases by an average of 9.3 points (assuming hours spent working is held constant).

For each additional hour spent working per day, overall happiness decreases by an average of 0.4 points (assuming hours spent exercising is held constant).

Using this model, a psychologist can quickly understand that more time spent exercising is associated with increased overall happiness and more time spent working is associated with lower overall happiness.

They can also quantify exactly how much exercise and working affect overall happiness.

Reason 3: Using Hypothesis Tests to Compare Methods

Another way that statistics is used in psychology is in the form of .

These are tests that psychologists can use to determine if there is a statistical significance between different methods, techniques, or procedures.

For example, suppose a sports psychologist believes that a new workout method is able to increase the mental well-being of college basketball players. To test this, he may measure the well-being (e.g. scale of 1-7) of 40 players before and after implementing the new workout method for one month.

He can then perform a using the following hypotheses:

H₀: $\mu_{\text{after}} = \mu_{\text{before}}$ (the mean well-being is the same before and after using the method)

H_A: $\mu_{\text{after}} > \mu_{\text{before}}$ (the mean well-being is greater after using the method)

If the of the test is less than some significance level (e.g. $\alpha = .05$), then he can reject the null hypothesis and conclude that the new method leads to increased well-being among players

Note: This is just one example of a hypothesis test that is used in psychology. Other common tests include a , , , and .

The following articles explain the importance of statistics in other fields:

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