

“What is the significance of statistics in nursing and can you provide some examples?”

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Statistics play a crucial role in the field of nursing as they provide evidence-based data to support decision-making and improve patient outcomes. They help nurses to accurately assess and monitor patient health, identify trends, and evaluate the effectiveness of interventions. For example, statistics can be used to track the prevalence of a disease in a particular population, compare the success rates of different treatments, and identify risk factors for certain health conditions. They also play a vital role in healthcare research, allowing nurses to gather and analyze data to develop new best practices and advance the field of nursing. In summary, statistics provide a scientific basis for nursing practice and contribute to the delivery of high-quality and evidence-based care.

The Importance of Statistics in Nursing (With Examples)

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

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

Reason 1: Statistics allows nurses to understand how to interpret descriptive statistics like mean, median, standard deviation, range, and percentiles.

Reason 2: Statistics allows nurses to understand how to interpret the findings from recent clinical trials and how to communicate these findings to patients.

Reason 3: Statistics allows nurses to understand how to interpret odds ratios, which can give patients an idea of the risk factors of different medications or lifestyle

choices.

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

Reason 1: Understand How to Interpret Descriptive Statistics

are used to *describe* data.

In a medical setting, a nurse might have access to the following descriptive statistics for a patient:

The mean weight of the patient during a given time interval. The standard deviation of weight of the patient during a given time interval. The percentile of height, weight, blood pressure, and heart rate for an patient.

Using these metrics, the nurse can gain a better understanding of the overall health of a given patient and give recommendations to the patient for improving their health.

For example, suppose a nurse can see that a patient is in the 93rd percentile of weight for their age group.

By taking a statistics course, a nurse would know that this means the individual has a weight that is greater

than 93% of all individuals in their same age group.

This is a clear indication that the individual is not at a healthy weight and the nurse can proceed to recommend a certain medication or lifestyle change that could positively affect the individual.

Reason 2: Understand How to Interpret Findings from Clinical Trials

Another important reason for nurses to understand statistics is so that they know how to interpret the findings from clinical trials.

For example, suppose researchers conduct a new clinical trial to determine if a new medication affects weight loss.

There was a significant difference in average weight loss between the new medication ($M = 5.75$, $SD = 1.25$) and the placebo ($M = 0.23$, $SD = 0.97$); $p = .021$.

A nurse who has taken a statistics course will know that the p reported in the results represents the from a two sample t-test.

And since this p-value is less than .05, they'll know that the findings from the study are statistically significant, which indicates that there is a statistically significant difference in weight loss among patients who took the new medication compared to those who took a placebo.

By understanding how to interpret these findings, they can relay this information to patients who are considering taking the new medication for weight loss.

Note: This is just one example of a statistical test that may be performed in clinical trials. Other common tests include a , , , and .

Reason 3: Understand How to Interpret Odds Ratios

Another important reason for nurses to understand statistics is so they know how to interpret odds ratios.

An odds ratio tells us the ratio of the odds of an event occurring in a treatment group compared to the odds of an event occurring in a control group.

For example, suppose researchers want to understand the relationship between a mother's age and the probability of having a baby with a healthy birthweight.

To explore this, they perform logistic regression using age as a predictor variable and healthy birthweight (no = 0, yes =1) as a .

Suppose they collect data for 200 mothers and fit a logistic regression model. Here are the results:

Predictor	Odds Ratio	P-value
Age	0.92	0.022

The odds ratio for the predictor variable *age* is less than 1. This means that each additional increase of one year in age is associated with a decrease in the odds of a mother having a healthy baby.

In particular, we can use the following formula to quantify the change in the odds:

Change in Odds %: $(OR-1) * 100$

For example, the odds ratio (OR) for age is 0.92. Thus, we could calculate:

Change in Odds %: $(0.92 - 1) * 100 = -8\%$

This means that each additional increase of one year in

age is associated with an 8% decrease in the odds of a mother having a healthy baby.

By understanding how to interpret this odds ratio, a nurse can clearly communicating this finding to a potential mother.

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

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