

# **Power Analysis for Patient Satisfaction Survey in Healthcare**

When I conducted a patient satisfaction survey for a local hospital, I discovered the vital relevance of power analysis in ensuring my study delivered significant results. Power analysis allows me to compute the optimal sample size needed for discovering actual effects while balancing resource restrictions.

## **Importance of Power Analysis**

Power analysis serves as the foundation of good experimental design. Without it, I risk undertaking research that wastes resources or fails to detect meaningful impacts. As Cohen (1992) emphasized, statistical power represents the chance of correctly rejecting a null hypothesis when it is indeed untrue. By doing an appropriate power analysis, I ensure my patient satisfaction survey has sufficient sensitivity to detect meaningful differences in satisfaction levels across different hospital departments.

The effects of lack of power are serious. If my sample size is too small, I might fail to identify important changes in patient satisfaction between emergency and outpatient services, leading to erroneous findings. Conversely, an unreasonably large sample wastes hospital resources and potentially subjects more patients to survey fatigue.

## **Determining Appropriate Significance Level**

For my patient satisfaction survey, I'll set the significance threshold ( $\alpha$ ) at 0.05, which strikes a compromise between Type I and Type II errors. This indicates I accept a 5% possibility of wrongly assuming there are variations in satisfaction levels when none exist. While medical treatment studies sometimes use tighter levels (0.01), patient satisfaction research typically adopts the 0.05 criterion (Suresh & Chandrashekara, 2012).

The context of my survey informs me of my selection. Since the results will inform hospital policy but not immediately impact medical treatments, a 5% false positive rate is acceptable. I'll also evaluate the projected effect size — assuming moderate changes between departments — and aim for 80% power as the typical benchmark.

## **Conducting the Power Analysis**

To conduct the power analysis for my poll, I'll follow these steps:

1. Define the effect magnitude I hope to identify based on preliminary data and literature
2. Set my significance level ( $\alpha = 0.05$ ) and desired power (80%)
3. Use G\*Power program to calculate the required sample size
4. Adjust for projected response rates and potential data loss

Since I'm comparing satisfaction levels across five hospital departments using ANOVA, I'll input these values into the software to discover I need roughly 200 respondents to achieve appropriate statistical power.

This strategy ensures my study provides credible results that can improve healthcare services while using resources efficiently.

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## **References:**

- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>

Suresh, K., & Chandrashekara, S. (2012). Sample size estimation and power analysis for clinical research studies. *Journal of Human Reproductive Sciences*, 5(1), 7.

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