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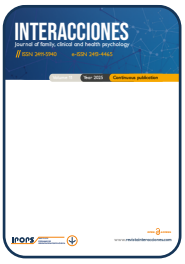

ORIGINAL ARTICLE

Sample, sample size and sampling: a review of current recommendations

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ABSTRACT

Introduction: The present review is based on the need to know the current recommendations on the sample, sample size and sampling that are considered in various empirical studies, aspects that certainly can generate confusion especially in novice researchers. In this sense, a theoretical and methodological framework is established that attempts to answer different questions raised on this subject, based on publications in high impact journals, guaranteeing their credibility and suitability. **Objective:** Provide a guide that offers different views on sample sizes and their practical application for researchers, teachers and students. **Method:** Theoretical study in the form of a narrative review. **Results:** Current recommendations revolve around performing power analysis to calculate the sample size, regardless of the type of sampling to be used, in addition to the fact that it is a good practice to be guided by the sample sizes of other studies with similar characteristics, preferably from journals indexed in high-level databases. However, it is necessary to clarify that this work should not be taken as a definitive guide, but that it is the duty of the researcher to be informed of new updates in methodologies that may arise on this subject. **Conclusions:** The choice of sample size depends on multiple factors that should be carefully analyzed.

Keywords: sample; sample size; sampling; research; review.

INTRODUCTION

The debate surrounding sample, sample size, and sampling techniques has been a constant source of discussion among researchers. Some advocate large, representative samples, while others argue for a more focused and specific orientation. This controversy points to the need to address this issue in a balanced and evidence-based manner.

Indeed, in a constantly evolving scientific context, current recommendations and practices in empirical research may require a thorough review to clarify decision-making in the face of the diversity of information and authors' views. Therefore, it is essential to keep up to date with methodological advances and best practices to ensure the robustness of the results.

In this sense, this review aims to provide a detailed overview of current trends in sampling and sampling design and implementation, addressing the complexities involved in balancing representativeness and statistical precision and exploring their practical implications. Through this critical analysis, it aims to provide researchers, practitioners, and students with an updated and practical guide for decision-making on sample selection and sample size based on methodological advances in recent years. It is structured in 4 sections: definitions of population, sample, sample size, and sampling; details on probability and non-probability sampling; appropriate sample sizes and current recommendations on sample size estimation and sampling.

METHODS

This study is framed within the theoretical design in the form of a narrative review, since it is a review of studies on a specific topic to provide a synthesis based on the author's perspective

(Ato et al., 2013).

It is important to note the lack of a systematic search strategy that is specific to narrative theory design. As a result, inherent limitations of the design are acknowledged, such as potential limitations in the bibliographic selection and restrictions in the theoretical area addressed. Even though the goal was to include current and pertinent sources, it's possible that some important contributions were left out; this should be considered after considering the findings and suggestions made.

RESULTS AND DISCUSSION

Population, sample, sample size, and sampling

Starting from the concept of population, some specific definitions are oriented to delimit it as the universe of individuals that contain the characteristics desired by the researcher to study them (Fuentelsalz, 2004) and that will serve as a reference to subsequently choose the sample, complying with a series of predefined criteria (Arias-Gómez et al., 2016). Likewise, it comprises all individuals from a given geographical region or institutions whose individual elements share common characteristics (Martínez-Mesa et al., 2014).

Now, the *sample* is a portion of participants extracted from the population that meet the characteristics required by the researcher to measure in them the variable(s) considered, this extraction of participants is performed under a determination of the number and selection of participants, called *sampling* (Goodwin & Goodwin, 2017; Stratton, 2023).

On the other hand, the *sample size* is the estimate of the number of participants required for the study, where its calculation is not a mere arithmetic operation that yields a result, but rather a mathematical function in which its estimate depends on a series of variables, and that, the modification of one of them, inevitably implies the adjustment in the others (for more detail see García-García et al., 2013).

Probability or non-probability sampling?

The two main approaches that can be seen in the literature are probability and non-probability sampling.

Probability sampling is characterized by granting each element of the population the possibility of being included as part of the sample, by means of probability formulas that grant an approximate size of participants that could guarantee its representativeness (Hernández & Mendoza, 2018).

This technique finds frequent applications in survey research, particularly when researchers have more direct access to the population of interest they wish to analyze through a representative sample (Goodwin & Goodwin, 2017). However, forget (or ignore) that, in order to execute a probability sampling, it is a fundamental requirement to have the sampling frame, which is defined as the total list of individuals that make up a population, to ensure a random selection subsequent to the determination of the sample size (Adwok, 2015; Hernández & Mendoza, 2018).

Among the types of probability sampling, we have simple random sampling, stratified sampling, cluster sampling (Goodwin & Goodwin, 2017; Hernández & Mendoza, 2018) and even systematic sampling (Otzen & Manterola, 2017), whose details will not be included here because they exceed the objectives of the study, but it is recommended to review the works of the authors previously cited.

On the other hand, in *non-probabilistic sampling,* the sample size cannot be determined through probabilities (as its name indicates) and, therefore, it does not need statistical analysis nor can the findings that come from it be extrapolated (Hernández & Mendoza, 2018), being irrelevant, therefore, the consideration of some formula pretending to obtain the minimum number of individuals required (Althubaiti, 2022) and imprudent to demand it under the sole argument of dismissing this type of sampling as opposed to probability sampling (Memon et al., 2020). Among the non-probabilistic sampling we have purposive, convenience, accidental (Otzen & Manterola, 2017), snowball and quota sampling, where the latter is the most recommended because it emulates stratified random sampling (Althubaiti, 2022; Goodwin & Goodwin, 2017), and other types that can be consulted in Ayhan (2011).

What is the appropriate sample size?

Some crucial questions that researchers often ask themselves are: How many participants should I include in my study? What is the appropriate sample size for my research? What sample size is representative? (Althubaiti, 2022; Andrade, 2020; Cortés et al., 2020; Memon et al., 2020; Martínez-Mesa et al., 2014).

Likewise, in the context of higher education, the orientations of research advisors influence students' decisions about the sample size to be considered in their work, even believe and defend that a larger sample size will lead to better results (Leenen, 2012; Memon et al., 2020) so some of them choose to recommend increasing the sample size to their students when they obtained a non-significant result in their studies, potentially originating bad practices such as p-hacking or HARKing (Head et al., 2015; Stefan & Schönbrodt, 2023; Padrão et al., 2018).

For a brief overview of these topics, "p-hacking" refers to the practice of adjusting or selecting data and statistical analyses until non-significant results become significant. This process involves a thorough examination of the data by applying multiple analytical models and modifying the criteria of these models until results that appear statistically relevant are achieved. Consequently, p-hacking can introduce both true and false positives into the scientific literature, which can bias the understanding of the phenomena studied and compromise the reproducibility of the findings (Head et al., 2015; Padrão et al., 2018).

And, HARKing, an acronym for "Hypothesizing After the Results are Known," is a practice in which researchers modify or adjust their hypotheses after they have analyzed the data. Instead of hypothesizing before data collection, researchers observe the results and then formulate hypotheses that fit these results. This practice can be problematic because it presents hypotheses as if they had been predicted beforehand, which can give a false impression of confirming theories and increase the risk of reporting spurious findings as if they were valid discoveries (Stefan & Schönbrodt, 2023). Like p-hacking, HARKing can distort scientific literature and compromise the integrity of research.

On the other hand, there are different formulas for determining the sample size, depending on the type of research to be car-

ried out. However, they are not included in this study because it goes beyond its objectives, but we suggest consulting the work of García-García et al. (2013) to expand on this topic.

If a pilot study is being conducted, recommendations suggest samples of between 10% to 20% of the target sample or also indications ranging from 10 to 75 participants (García-García et al., 2013; Whitehead et al., 2016), with similar characteristics to the target sample, and it is important to remember that those who were part of the pilot sample cannot subsequently be part of the target sample.

For instrumental research, through various simulation studies, it has been determined that, from 200 participants onwards, the stability of the results can be guaranteed and the non-convergence of the factorial structure can be minimized (Ferrando and Anguiano-Carrasco, 2010; Lloret-Segura et al., 2014), although this will also depend on the number of factors and items; the larger they are, the larger the sample size should therefore increase.

Similar recommendations are found for correlational studies, where a sample of 200 participants could guarantee acceptable results, whereas, for regression analysis, a minimum of 50 to 100 is adequate. And for comparative studies of 2 groups, 30 participants for each group are the minimum sufficient (Memon et al., 2020).

For descriptive studies, no recommendations were found for their estimation by power analysis, only for their calculation with the formula based on probabilities.

Current recommendations on sample size estimation and sampling

The traditional formula that divides populations into finite and infinite to determine the sample size has practically no effect on the probability that the sample describes the population (Taherdoost, 2016), besides it can be labeled as an obsolete method (Quispe et al., 2020); instead, it is pertinent to keep in mind that the robustness of any sample depends more on the careful selection of participants than on their size (Abt et al., 2020; Mooi et al., 2018).

In fact, large sample sizes can lead to type I research error (Hair et al., 2018; Kline, 2023), because in a high number of participants one can obtain, coincidentally highly significant results, but poor effect sizes (Pineda & Sirota, 2018), this because statistical significance is affected by the sample size, the larger it is, the higher the probability of obtaining a result $p<.05$, but this does not necessarily translate into practical significance (Kline, 2023). To expand on this term, we recommend reviewing Barriopedro (2015), Martínez-Ezquerro et al. (2017), Schober et al. (2018) and Merino-Soto & Angulo-Ramos (2020).

In the case of the formula for finite populations, it is easily verifiable that when manipulating the data entry with the traditional 95% confidence and 5% margin of error, we will obtain almost the same sample sizes for populations above 20,000 individuals, which would lead us to think, for example, if we consider a population of 30,000, we will obtain a result of 380; with 40,000 the result will be 381; with 50,000 it will be 382; and so on we can continue to verify that only 1 participant increases and in some cases above does not vary, which leads us to question whether among a distribution of 10,000 additional individuals gradually, just surveying one more person will be enough to take into account the variability among all of them?

On the other hand, the formula for infinite populations, in its denominator is located the maximum accepted error percentage expressed in decimals, whose manipulation towards a progressively lower index, will cause the result to rise higher and higher. This is because, mathematically, when a number is divided by a decimal closer to zero (.01; .001; .0001; etc.), the resulting value will always be higher. Now, given this, it is necessary to ask ourselves, in practice, is it feasible to have access to such large sample quantities that can be obtained as a result? Will our research results really reflect such a minuscule percentage of error that has been granted?

Thus, for those who will consider non-probability sampling, it is recommended that they perform a power analysis; in fact, this analysis can be used for any research design regardless of whether the study employs a probability or non-probability sampling technique for data collection (Memon et al., 2020).

To perform it, we recommend the use of G*Power (examples are presented in appendices 1 and 2), the "pwr" package in RStudio, Daniel Soper's online calculator [https://www.danielsoper.com/statcalc/category.aspx?id=19] (sample size can be calculated for structural equation modeling; an example is provided in Annex 2), and the statistical software JASP and Jamovi (with their "power" add-ons) and SPSS from version 27 onwards also have options to perform it.

On the other hand, verification of the sample sizes considered in studies published in high-impact journals is also recommended as a guide (Memon et al., 2020; White, 2022).

It is important to keep in mind that these estimations should not be taken as exact numbers of participants, but as adequate minimums to ensure the relevance of the results reported in the study.

Please refer to appendices 3 and 4 for a summary display of recommendations for deciding sample size estimates and a summary table of guidelines by type of study.

Studies are not exactly equal

When relying on previous studies that are not the same, Brysbaert (2019) recommends making careful adjustments to the sample size. First, the similarity between the current study and previous studies in terms of measured variables, contexts, and methods should be assessed. It is essential to consider differences in the study population, experimental setting, and methods of analysis. The author suggests increasing the sample size to compensate for these differences and to ensure that the new study has sufficient statistical power. For example, if a previous clinical psychological trial used a sample of 100 participants, but the context of the intended new study is more varied, it may be prudent to increase the sample size to 130-150 participants.

What if I am looking for interactions instead of main effects?

Interactions refer to situations where the effect of an independent variable on the dependent variable changes depending on the level of another independent variable. That is, the impact of one variable on the outcome is not constant but varies ac-

cording to another variable. Looking for interactions rather than main effects requires, according to Brysbaert (2019), a larger sample size because interactions tend to have smaller effects and are more difficult to detect. While a main effect can be detected with a modest sample size, interactions, especially higher-order interactions, may require significantly larger samples.

Multiple repeated measurements

Multiple repeated measures refer to an experimental design where the same variables are measured in the same participants on multiple occasions or under different conditions. This approach allows evaluation of changes in variables within the same individuals over time or in response to different treatments, providing greater control over individual variability and increasing the precision of the results. The use of repeated measures adds complexity to the sample size estimation due to the correlation between measurements. Brysbaert (2019) highlights that this design can increase statistical power as it reduces intra-subject error variability. However, to estimate the sample size in these studies, the magnitude of correlations between repeated measures and the structure of the design (e.g., number of measurement points) should be considered. It is suggested to use mixed models that incorporate the correlation between repeated measurements and adjust the sample size accordingly. In studies with repeated measures, a larger number of participants may be needed to detect more subtle effects, especially when measures are highly correlated (Brysbaert, 2019).

Some additional topics

Demographic heterogeneity and cultural context directly influence sampling decisions and the generalizability of findings, as inadequate representation of diversity may exclude marginalized or vulnerable groups, perpetuating inequalities. This exclusion can compromise the validity of the results and lead to inappropriate interventions. It is therefore essential to clearly define the total population and the target population, and to design inclusive sampling strategies that ensure not only methodological rigor and external validity, but also the ethical integrity of the study (Willie, 2024).

Indeed, population heterogeneity, cultural factors, and sociopolitical environments significantly influence research methodology, especially sampling decisions and the degree to which findings can be generalized. Research indicates that demographic diversity presents unique challenges that require customized sampling approaches to ensure representativeness and validity. While population heterogeneity appears to contribute less to variation in effect sizes than heterogeneity of design and analytics, its proper consideration remains elemental to obtaining valid research results (Krefeld-Schwalb et al., 2025).

In such contexts, stratified sampling may be beneficial, as it divides the population into different subgroups or strata based on shared characteristics such as age, gender, income level or other demographic variables.

Conclusion

After reviewing the literature on sample size determination, it was concluded that there are no universal or restrictive guidelines in this regard. However, some key methodological considerations were identified to ensure the representativeness, stability and external validity of the results. Among the recommendations with the greatest consensus are using as a reference the sample sizes used in previous research in the field, especially those published in high-impact journals (White, 2022); and performing a priori statistical power analysis in accordance with the proposed research design (Memon et al., 2020). Such analyses make it possible to determine the sample size needed to detect effects of the desired size, with an appropriate level of significance and statistical power. Although there is no single formula for calculating the ideal sample size, the specialized literature provides guidelines and criteria that every researcher should rigorously consider before selecting the sample, with a view to maximizing the relevance of his or her findings.

On the other hand, the orientations given by the research advisors in the universities, are usually carried out, in some cases, under frequentist criteria and, certainly, obsolete (Memon et al., 2020; Quispe et al., 2020), even rejecting self-selection in students' work, forgetting (or ignoring) that the American Psychological Association (APA, 2018) allows the use of this procedure in research, taking into account the caveat that it must be made explicit in the article report, as stated in its Journal Article Reporting Standards (JARS).

Indeed, it is also important to keep in mind that the decision to configure sample sizes with the objective of "ensuring" statistically significant results should not be based on single criteria, given that there is no golden rule for this purpose, therefore, it is necessary to complement our decisions with cumulative evidence from multiple studies with similar conditions to ours (Trafimow et al., 2018). However, the number of participants included by the researcher should also be guided by cost and time constraints, in addition to a judgment oriented toward the practical significance of their findings (Althubaiti, 2022). Likewise, probability sampling is not essential for many investigations in psychology, being sufficient to choose samples by convenience or intentionally, i.e., participants who meet specific criteria for the study, however, care must be taken with the conclusions reached, avoiding their generalization (Goodwin & Goodwin, 2017).

In this sense, we must not forget that a crucial element to achieve with the studies we carry out is to ensure their external validity, understood as the generalization of the findings beyond the specific study. In other words, determining whether an effect proven under certain conditions could be replicated in other scenarios, with different participants, treatments, outcome variables and procedures. In other words, external validity seeks to establish to what extent the results obtained are extrapolable to the target population or to other contexts of interest and are not limited only to the specific sample and situation examined (Ato and Vallejo, 2015).

In summary, sample size determination requires a balance between methodological rigor, practical feasibility and judgment informed by the specialized literature. The guidelines by Brysbaert (2019) and Memon et al. (2020) are recommended as updated references that consider various aspects of this crucial issue in the scientific research process.

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AUTHORS' CONTRIBUTION
José Gamarra-Moncayo: Conceptualization, investigation, writing, review, and approval of the final version.
Rony Prada-Chapoñán: Review, supervision, and approval of the final version.

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The authors declare that there were no conflicts of interest in the collection of data, analysis of information, or writing of the manuscript.

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REVIEW PROCESS
This study has been reviewed by external peers in double-blind mode. The editor in charge was David Villarreal-Zegarra. The review process is included as supplementary material 1.

DATA AVAILABILITY STATEMENT
The authors declare that the database is not available, since this is a theoretical type of work. Appendices 1, 2, 3, and 4 are presented in supplementary material 2.

DECLARATION OF THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE
We used DeepL to translate specific sections of the manuscript. The final version of the manuscript was reviewed and approved by all authors.

DISCLAIMER
The authors are responsible for all statements made in this article.

REFERENCES
Abt, G., Boreham, C., Davison, G., Jackson, R., Nevill, A., Wallace, E., & Williams, M. (2020). Power, precision, and sample size estimation in sport and exercise science research. *Journal of Sports Sciences, 38*(17), 1933-1935. https://doi.org/10.1080/02640414.2020.1776002

Adwok, J. (2015). Probability Sampling - A Guideline for Quantitative Health Care Research. *The Annals of African Surgery, 12*(2), 95-99. https://www.ajol.info/index.php/aas/article/view/126349

Althubaiti, A. (2022). Sample size determination: A practical guide for health researchers. *Journal of General and Family Medicine*, *24*(2), 72-78. https://doi.org/10.1002/jgf2.600

American Psychological Association. (2018). *Journal Article Reporting Standards (JARS)*. APA Style. https://apastyle.apa.org/jars

Andrade, C. (2020). Sample Size and its Importance in Research. *Indian Journal of Psychological Medicine*, *42*(1), 102-103. https://doi.org/10.4103/IJPSYM.IJPSYM_504_19

Arias-Gómez, J., Villasís-Keever, M. Á., & Miranda-Novales, M. G. (2016). El protocolo de investigación III: la población de estudio. *Revista Alergia México, 63*(2), 201–206. https://doi.org/10.29262/ram.v63i2.181

Ato, M., López-García, J. J., & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología*, *29*(3), 1038-1059. https://doi.org/10.6018/analesps.29.3.178511

Ato, M. y Vallejo, G. (2015). *Diseños de investigación en Psicología.* Ediciones Pirámide.

Ayhan, H. (2011). Non-probability Sampling Survey Methods. *International Encyclopedia of Statistical Science,* 979-982. https://doi.org/10.1007/978-3-642-04898-2_41

Barriopedro, M. I. (2015). La significación estadística no es suficiente. [Statistical significance is not enough]. *RICYDE. Revista internacional de ciencias del deporte*, *11*(40), 101-103. https://doi.org/10.5232/ricyde2015.040ed

Brysbaert, M. (2019). How Many Participants Do We Have to Include in Properly Powered Experiments? A Tutorial of Power Analysis with Reference Tables. *Journal of Cognition*, *2*(1), 1-38. https://doi.org/10.5334/joc.72

Cortés, M., Mur, N., Iglesias, M., & Cortés, M. (2020). Algunas consideraciones para el cálculo del tamaño muestral en investigaciones de las Ciencias Médicas. *MediSur*, *18*(5), 937-942. http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S1727-897X2020000500937&lng=es&nrm=iso&tlng=es

Ferrando, J., & Anguiano-Carrasco, C. (2010). El análisis factorial como técnica de investigación en psicología. *Papeles del Psicólogo, 31*(1), 18-33. https://www.redalyc.org/articulo.oa?id=77812441003

Fuentelsalz, C. (2004). Cálculo del tamaño de la muestra. *Matronas Profesión, 5*(18), 5-13. https://dialnet.unirioja.es/servlet/articulo?codigo=6125940

García-García, J. A., Reding-Bernal, A., & López-Alvarenga, J. C. (2013). Cálculo del tamaño de la muestra en investigación en educación médica. *Investigación en Educación Médica*, *2*(8), 217-224. https://doi.org/10.1016/S2007-5057(13)72715-7

Goodwin, K., & Goodwin, C. (2017). *Research in Psychology: Methods and Design.* Wiley

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate Data Analysis.* (8th ed.). Cengage Learning.

Head, M. L., Holman, L., Lanfear, R., Kahn, A. T., & Jennions, M. D. (2015). The Extent and Consequences of P-Hacking in Science. *PLOS Biology*, *13*(3), e1002106. https://doi.org/10.1371/journal.pbio.1002106

Hernández, R., & Mendoza, Ch. (2018). *Metodología de la investigación: Las rutas cuantitativa, cualitativa y mixta.* McGraw Hill Education

Kline, R. (2023). *Principles and practice of structural equation modeling.* (5th ed). Guilford Press

Krefeld-Schwalb, A., Hua, X., & Johnson, E. (2025). Measuring population heterogeneity requires heterogeneous populations. *PNAS, 122*(8), e2425536122. https://doi.org/10.1073/pnas.2425536122

Leenen, I. (2012). La prueba de hipótesis nula y sus alternativas: revisión de algunas críticas y su relevancia para las ciencias médicas. *Investigación en Educación Médica, 1*(4), 225-234. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S2007-50572012000400010

Lloret-Segura, S., Ferreres-Traver, A., Hernández-Baeza, A., & Tomás-Marco, I. (2014). El Análisis Factorial Exploratorio de los Ítems: una guía práctica, revisada y actualizada. *Anales de Psicología, 30*(3), 1151-1169. https://dx.doi.org/10.6018/analesps.30.3.199361

Martínez-Ezquerro, J. D., Riojas-Garza, A., & Rendón-Macías, M. E. (2017). Significancia clínica sobre significancia estadística. Cómo interpretar los intervalos de confianza a 95%. *Revista Alergia México*, *64*(4), 477-486. https://doi.org/10.29262/ram.v64i4.334

Martínez-Mesa, J., González-Chica, D. A., Bastos, J. L., Bonamigo, R. R., & Duquia, R. P. (2014). Sample size: how many participants do I need in my research? *Anais Brasileiros de Dermatologia*, *89*(4), 609-615. https://doi.org/10.1590/abd1806-4841.20143705

Memon, M. A., Ting, H., Cheah, J.-H., Thurasamy, R., Chuah, F., & Cham, T. H. (2020). Sample Size for Survey Research: Review and Recommendations. *Journal of Applied Structural Equation Modeling*, *4*(2), i-xx. https://doi.org/10.47263/JASEM.4(2)01

Merino-Soto, C., & Angulo-Ramos, M. (2020). Significancia práctica de resultados no paramétricos: aportes a «satisfacción e índice de masa corporal y su influencia en el autoconcepto físico». *Revista Española de Salud Pública*, *94*. https://doi.org/10.4321/S1135-57272020000100029

Mooi, E., Sarstedt, M., & Mooi-Reci, I. (2018). *Market Research: The Process, Data, and Methods Using Stata.* Springer.

Otzen, T., & Manterola, C. (2017). Técnicas de Muestreo sobre una Población a Estudio. *International Journal of Morphology*, *35*(1), 227-232. https://doi.org/10.4067/S0717-95022017000100037

Padrão, E., Melo, C., Fernandes, G., & Magalhães, A. (2018). p-Hacking – A call for ethics. *Pulmonology*, *24*(3), 207-208. https://doi.org/10.1016/j.pulmoe.2018.03.001

Pineda, S., & Sirota, M. (2018). Determining significance in the new era for p-values. *Journal of pediatric gastroenterology and nutrition*, *67*(5), 547-548. https://doi.org/10.1097/MPG.0000000000002120

Quispe, A. M., Pinto, D. F., Huamán, M. R., Bueno, G. M., & Valle-Campos, A. (2020). Metodologías cuantitativas: Cálculo del tamaño de muestra con STATA y R. *Revista Del Cuerpo Médico Hospital Nacional Almanzor Aguinaga Asenjo*, *13*(1), 78–83. https://doi.org/10.35434/rcmhnaaa.2020.131.627

Schober, P., Bossers, S. M., & Schwarte, L. A. (2018). Statistical Significance Versus Clinical Importance of Observed Effect Sizes: What Do P Values and Confidence Intervals Really Represent? *Anesthesia and Analgesia*, *126*(3), 1068-1072. https://doi.org/10.1213/ANE.0000000000002798

Stefan, A. M., & Schönbrodt, F. D. (2023). Big little lies: a compendium and simulation of p-hacking strategies. *Royal Society Open Science*, *10*(2), 220346. https://doi.org/10.1098/rsos.220346

Stratton, S. J. (2023). Population Sampling: Probability and Non-Probability Techniques. *Prehospital and Disaster Medicine*, *38*(2), 147-148. https://doi.org/10.1017/S1049023X23000304

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3205035

Trafimow, D., Amrhein, V., Areshenkoff, C. N., Barrera-Causil, C. J., Beh, E. J., Bilgiç, Y. K., Bono, R., Bradley, M. T., Briggs, W. M., Cepeda-Freyre, H. A., Chaigneau, S. E., Ciocca, D. R., Correa, J. C., Cousineau, D., de Boer, M. R., Dhar, S. S., Dolgov, I., Gómez-Benito, J., Grendar, M., Grice, J. W., … Marmolejo-Ramos, F. (2018). Manipulating the Alpha Level Cannot Cure Significance Testing. *Frontiers in psychology*, *9*, 699. https://doi.org/10.3389/fpsyg.2018.00699

White, M. (2022). Sample size in quantitative instrument validation studies: A systematic review of articles published in Scopus, 2021. *Heliyon, 8*(12), e12223. https://doi.org/10.1016/j.heliyon.2022.e12223

Whitehead, A. L., Julious, S. A., Cooper, C. L., & Campbell, M. J. (2016). Estimating the sample size for a pilot randomised trial to minimise the overall trial sample size for the external pilot and main trial for a continuous outcome variable. *Statistical Methods in Medical Research*, *25*(3), 1057-1073. https://doi.org/10.1177/0962280215588241

Willie, M. (2024). Population and Target Population in Research Methodology. *Golden Ratio of Social Science and Education, 4*(1), 75–79. https://doi.org/10.52970/grsse.v4i1.405

Muestra, tamaño de muestra y muestreo: una revisión de las recomendaciones actuales

RESUMEN

Introducción: La presente revisión surge de la necesidad de conocer las recomendaciones actuales sobre la muestra, el tamaño de muestra y el muestreo que se consideran en diversos estudios empíricos, aspectos que pueden generar confusión, especialmente en investigadores noveles. En este sentido, se establece un marco teórico y metodológico que busca responder distintas preguntas sobre este tema, basándose en publicaciones en revistas de alto impacto, lo que garantiza su credibilidad y pertinencia. **Objetivo:** Brindar una guía que ofrezca diferentes perspectivas sobre el tamaño de muestra y su aplicación práctica para investigadores, docentes y estudiantes. **Método:** Estudio teórico en forma de revisión narrativa. **Resultados:** Las recomendaciones actuales giran en torno a la realización de análisis de potencia para calcular el tamaño de muestra, independientemente del tipo de muestreo a utilizar. Además, se considera una buena práctica guiarse por los tamaños muestrales de otros estudios con características similares, preferentemente publicados en revistas indexadas en bases de datos de alto nivel. Sin embargo, es preciso aclarar que este trabajo no debe tomarse como una guía definitiva, sino que es responsabilidad del investigador mantenerse informado sobre nuevas actualizaciones metodológicas que puedan surgir sobre este tema. **Conclusiones:** La elección del tamaño de muestra depende de múltiples factores que deben ser analizados cuidadosamente.

Palabras claves: muestra; tamaño de muestra; muestreo; investigación; revisión.