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# Exploring The Significance of Simple Random Sampling Technique on Marital Satisfaction Studies in Nigeria

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**Abstract**

*This study examines the relevance of the simple random sampling technique in research on marital satisfaction in Nigeria. Simple random sampling is one of the most commonly applied sampling approaches in quantitative survey-based research. It is particularly suitable for populations that are relatively homogeneous and evenly distributed. Under this technique, every member of the population has an identical chance of being selected, as participation is determined purely by chance rather than researcher discretion. While simple random sampling offers notable strengths—such as minimizing selection bias, enhancing representativeness, and ensuring equal selection probability—it also presents certain limitations. These include the practical difficulty of obtaining a complete and accurate sampling frame, the time-consuming nature of the process, and reduced effectiveness when the population is diverse or geographically scattered.*

***Keywords***: *Exploring, Significance, Simple Random Sampling Technique, Marital Satisfaction, Studies.*

## Introduction

Population refers to the complete set of individuals or elements about which a researcher seeks to obtain information (Stockemer, 2019). Although examining the entire population would be ideal for addressing a research problem, this is rarely feasible in practice (Acharya, 2021). As a result, researchers usually rely on a sample that adequately reflects the characteristics of the target population. The determination of an appropriate sample size is closely linked to the size and nature of the population being studied. Sampling, therefore, serves as a systematic method through which researchers select a smaller, manageable group of individuals or units from a clearly defined population to function as sources of data for observation or experimentation, in line with the objectives of the study (Sharma, 2019). It is essential that the chosen sample is appropriately sized, as excessively small or unnecessarily large samples can undermine the quality and efficiency of a study (Faber & Fonseca, 2021). Miles and Huberman (2019) further emphasize the importance of clearly defining the focus and purpose of a study, warning that a lack of clarity may lead to indiscriminate data collection, excessive data volume, and diversion into related but unproductive issues that consume time and analytical resources. Consequently, when applying simple random sampling, researchers must precisely specify the population from which the sample is drawn to ensure methodological rigor and validity.

Marital satisfaction represents an individual's level of contentment and fulfillment within the family unit and is widely regarded as a key indicator of personal well-being. It plays a critical role in supporting the physical and psychological development of family members and, by extension, contributes to the stability and health of society as a whole (Edalati & Redzuan, 2020). The concept is commonly defined as a person's favorable evaluation of their marital relationship (Ofovwe et al., 2023), encompassing how spouses perceive the overall quality of their union and the degree to which they find the relationship rewarding and meaningful. In essence, marital satisfaction exists when partners experience mutual happiness, feel fulfilled by being together, and believe that their needs and expectations are adequately met within the marriage (Hawkins et al., 2020). A longstanding concern in marital satisfaction research, however, relates to the

methodological challenge of selecting participants with confidence, particularly when using simple random sampling. Although this technique is relatively easy to apply, it is often constrained by issues such as sampling error, the difficulty of accessing a complete and current sampling frame, and the risk of insufficient representation of key subgroups within the population. When these challenges arise, the resulting sample may fail to accurately mirror the population, thereby introducing bias and affecting the validity of research findings (Gonzalez & Viitanen, 2023).

**Defining Simple Random Sampling in a Scientific Research**

Simple random sampling is one of the most widely applied sampling techniques in scientific investigations. It is particularly appropriate for studies involving relatively homogeneous populations, where participants are chosen purely at random to take part in the research process (Bhardwaj, 2019). This method is often described as the most basic and frequently used approach to sample selection, as each unit in the population is chosen independently and has the same probability of being selected at every draw (Singh, 2023). As noted by Acharya (2021), the defining feature of simple random sampling is that every member of the population has an equal likelihood of inclusion in the sample. In the same vein, Thomas (2020) emphasizes that the technique guarantees equal chances of selection for all potential respondents. In practical applications, especially when dealing with large populations, researchers typically assign numerical identifiers to all units in the sampling frame and then use computer-generated random numbers to determine the final sample (Rahi, 2017; Omair, 2021). Because selection is governed by chance, the resulting sample is expected to reflect the diversity present in the broader population, capturing individuals of varying ages, physical attributes, health statuses, and socioeconomic backgrounds (Cohen et al., 2018). Consequently, when applying simple random sampling, it is essential for the researcher to clearly define the shared characteristics that qualify individuals for participation in the study.

**What is the Simple Random Sampling Formula?**

West (2021) explained that determining a simple random sample follows a straightforward mathematical procedure, in which the likelihood of selecting a sample consisting of *n* elements is computed using a probability-based formula. This formula is applied to ensure that each unit in the population has an equal and independent chance of being included in the sample.

$P = 1 – (N-1/N)/(N-2/N-1)…(N-n/N-(n-1)$

P = the probability of selecting a sample of 'y' items

n = the sample size

N = the population size

This procedure involves calculating a selection interval by dividing the total population size by the desired sample size and then selecting units according to this interval. For instance, if a sample of 50 participants is to be drawn from a population of 1,000 individuals, dividing 1,000 by 50 yields an interval of 20, meaning that every 20th individual is selected for inclusion in the sample.

**Framing Simple Random Sampling**

Simple random sampling is commonly applied in survey-based and quantitative research because it gives every member of the target population an equal chance of selection (Rahi, 2017). This method is particularly suitable when the population is relatively homogeneous and evenly distributed. Ansar et al. (2017), for example, employed simple random sampling in a study conducted in Gorontalo Province, Indonesia, involving 123 senior secondary school English teachers. The objective of the study was to determine whether school culture had a direct positive effect on the performance of English teachers at the secondary school level. Simple random sampling was chosen after establishing clear inclusion criteria, namely that participants must be English teachers at senior secondary schools, currently in active service, and willing to respond to the survey instrument.

**Types of Simple Random Sampling**

Thomas (2020) reported that simple random sampling can be broken down into two categories:

1. Sampling with replacement and
2. Sampling without replacement.

**1. Sampling with Replacement**

Thomas (2020) explained that sampling with replacement involves returning each selected element to the population before the next selection is made. This procedure ensures that, at every draw, all members of the population have an equal probability of being chosen. Simple random sampling with replacement is particularly appropriate when the population size is small or when the selected sample constitutes a substantial proportion of the population. It is also advantageous in situations where the population is dynamic over time, as it allows the possibility of selecting the same unit more than once, thereby preserving equal selection chances across sampling rounds.

**2. Sampling without Replacement**

In sampling without replacement, once an element is selected from the population, it is not returned before the subsequent selection is made. Consequently, the likelihood of choosing any remaining element changes with each draw. This approach is particularly appropriate when

dealing with a large population from which a relatively small sample is drawn. Sampling without replacement ensures that each unit is selected only once, thereby preventing duplication of data and enhancing the uniqueness of observations within the sample (Thomas, 2020).

**How to perform simple random sampling**

There are 4 key steps to select a simple random sample (Thomas, 2020).

Step 1: Define the population

The first step is to clearly define the target population to be investigated. It is essential that the researcher is able to reach every member of this population so that information can be obtained from all individuals who are ultimately selected into the sample. For instance, in a Nigerian Community Survey, the population would consist of all households residing in Nigeria, estimated at about 128 million, including households composed of both citizens and non-citizens.

Step 2: Decide on the sample size

The determination of an appropriate sample size is a critical stage of the research process. While larger samples tend to yield more reliable and precise statistical results, they also demand greater financial resources, time, and effort. Several approaches can be used to decide on sample size; however, one of the most straightforward methods involves applying a statistical formula that incorporates the chosen confidence level and confidence interval, the estimated population size, and the assumed standard deviation of the variable being measured. Commonly, researchers adopt a confidence level of 95% and a confidence interval of 0.05. In situations where the population standard deviation is unknown, it is advisable to select a sufficiently large estimate—often 0.5—to accommodate a wide range of potential variability within the population.

You can then use a sample size calculator to estimate the necessary sample size.

The American Community Survey (ACS) surveys approximately 3.5 million households annually. Although this represents only a small proportion of the total population of about 128 million households, the sample is sufficiently large to produce comprehensive and reliable data across all geographic areas and demographic segments in the United States. Importantly, this scale allows the survey to capture detailed information on groups that are often underrepresented in other survey efforts, thereby enhancing the inclusiveness and representativeness of the findings.

Step 3: Randomly select your sample

Sample selection can be carried out using either the lottery approach or the random number technique. Under the lottery approach, participants are chosen purely by chance, similar to drawing names from a container, or through the use of a computer application that replicates this random selection process. In contrast, the random number technique involves assigning a unique number to each member of the population and then using a random number table or a computer-based random number generator to select a subset of individuals. Spreadsheet tools such as Microsoft Excel's RAND function may also be employed for this purpose. In practice, for example, the Census Bureau applies a random selection procedure by choosing addresses from approximately 295,000 households each month, amounting to about 3.5 million households annually, with each address having an estimated probability of one in 480 of being selected.

Step 4: Collect data from your sample

Finally, you should collect data from your sample.

To safeguard the credibility of research outcomes, it is essential that all individuals selected for the sample actively participate in the study. Non-participation or withdrawal that is linked to the subject under investigation may introduce systematic bias and compromise the validity of the findings. For instance, if younger respondents are consistently less willing to take part, their underrepresentation could distort the results and limit their generalizability. To minimize such risks, structured follow-up procedures are often employed. In the case of the Census Bureau, initial contact is made through mailed invitations requesting respondents to complete the survey online. When there is no response, follow-up is conducted via telephone calls, and if necessary, in-person visits are made to the selected addresses. By implementing these multiple contact strategies, data collection officials for the American Community Survey (ACS) achieve response rates of approximately 95 percent, thereby strengthening the reliability and validity of the survey results.

**The significance of simple random sampling technique on marital satisfaction studies in Nigeria**

Simple random sampling technique is a foundational method in statistical research, including marital satisfaction studies. Its significance in the context of Nigeria, a country with diverse populations, regions, and socioeconomic groups, is particularly important for ensuring valid and representative insights. Here's a breakdown of the significance of simple random sampling in marital satisfaction studies in Nigeria (Abamara et al., 2018).

1. Ensures Representativeness: Simple random sampling gives every individual in the population an equal chance of being selected. In a country like

Nigeria with over 200 million people and significant ethnic, cultural, and geographic diversity, this method helps ensure that different demographic groups are fairly represented, thus minimizing selection bias.

2. Facilitates Generalization of Results: Because the sample is randomly selected, the findings from the sample can be generalized to the larger population with a known margin of error. This is crucial in Nigeria, where marital satisfaction studies (e.g., public service satisfaction, consumer satisfaction, electoral satisfaction) often inform national policies.
3. Simplicity and Transparency: Simple random sampling is straightforward to implement and easy to understand. This transparency is critical in Nigeria, where public trust in data and research findings can be low due to perceived political or institutional bias. A clear sampling method can improve credibility.
4. Minimizes Researcher Bias: By relying on chance rather than judgment, Simple random sampling reduces the influence of researcher bias in selecting participants. This is particularly important in sensitive areas of marital satisfaction studies in Nigeria such as political approval, ethnic relations, or access to social services where subjective selection could skew results.
5. Enhances Statistical Validity: Simple random sampling supports the application of standard statistical tests and confidence intervals, improving the robustness of the findings. In the context of Nigeria, this allows stakeholders (government, NGOs, businesses) to make more data-driven decisions regarding service delivery, public policy, and development initiatives.
6. Cost-Effective for Large-Scale Studies: While stratified or cluster sampling may be more efficient for certain types of studies, simple random sampling is often cheaper and faster for initial exploratory satisfaction surveys in Nigeria, particularly when detailed population data is unavailable.

**Examples of Nigerian Studies applying Simple Random Sampling Technique**

Here are some illustrative cases across states and topics:

1. Akwa Ibom State: In a 2024 study on self-concept and marital satisfaction, researchers sampled 420 married individuals using multi-stage and simple random sampling to ensure broad coverage of the 1,590-person target group. This enabled significant findings about self-regulation positive relationship with marital satisfaction (Onisoya & Udo, 2024).
2. Awka, Anambra State: A 2018 study used simple random sampling technique to select 165 married men and women within Nnamdi Azikiwe University. This approach allowed the researchers to meaningfully explore how self-regulation influence marital satisfaction (Abamara et al., 2018).
3. Nsukka, Enugu State: Researchers combined cluster sampling with simple random sampling to select 197 married couples across autonomous communities. This method ensured inclusion across diverse localities before analyzing community perceptions on domestic violence among married women (Iyiani & Ngwu, 2012).
4. Christ Apostolic Church, Akure: In 2022, 180 Christian couples were selected via simple random sampling to examine forgiveness and marital satisfaction, finding a significant positive relationship ($r = .565$) (Abiodun et al., 2022).

**Challenges in the Nigerian Context**

Despite its advantages, Simple random sampling in Nigeria faces practical challenges:

1. Inadequate sampling frames: Many regions lack up-to-date, comprehensive lists of residents.
2. Low literacy and digital access: These can limit participation and response rates.
3. Geopolitical constraints: Insecurity or inaccessible areas may skew randomness.

To mitigate these, researchers often combine Simple random sampling with stratification or cluster techniques for better feasibility while maintaining randomness.

**Advantages of Simple Random Sampling**

Simple random sampling is relatively easy to implement, yet it is not always widely applied, even though it offers several clear benefits when properly executed (Best & Kahn, 2016). Its key advantages include the following:

1. Lack of Bias: One of the major strengths of simple random sampling is its ability to minimize bias. Because participants are selected purely by chance, every individual within the population has an equal likelihood of being included in the sample. This equal probability enhances the representativeness of the sample and increases its potential to accurately reflect the characteristics of the larger population (Cohen et al., 2018). For example, if a researcher is required to select 10 items from a set of 100, bias can be avoided by randomly drawing

the items without visual guidance, ensuring that no preference influences the selection process.

2. Simplicity: As the name suggests, simple random sampling is straightforward and less complex compared to many other sampling techniques. It does not involve elaborate procedures or specialized expertise, making it practical and efficient to apply. Unlike stratified random sampling—which requires dividing the population into subgroups based on shared characteristics before sampling—simple random sampling involves fewer steps, as individuals are selected directly and randomly from the entire population (Barreiro & Albandoz, 2021).
3. Less Knowledge Required: Another notable advantage is that the researcher does not need detailed prior information about the population to apply this method effectively. Since selection is entirely random, comprehensive knowledge of population characteristics is not a prerequisite, making simple random sampling accessible and convenient for researchers across various fields.

**Disadvantages of Simple Random Sampling**

Despite its notable strengths, simple random sampling also presents several inherent limitations that can affect its practicality and effectiveness in research applications. These challenges mainly relate to access, time, cost, representativeness, and researcher competence (Reitermanova, 2020).

1. Difficulty accessing lists of the full population: Simple random sampling requires an accurate and comprehensive list of the entire population under study to ensure statistical validity. However, obtaining such lists is often difficult. For instance, universities may restrict access to full student or staff registers, while private organizations may decline to release employee data due to confidentiality and data protection policies (Rahman et al., 2022). The unavailability of complete population frames can therefore hinder the proper application of this sampling technique.
2. Time Consuming: When a complete population list is not readily available, researchers may need to compile the required information from multiple secondary or public sources. Although smaller databases can sometimes be merged to approximate a full population list, this process is often labor-intensive and slow (Stockemer et al., 2019). Additionally, institutions that maintain official records frequently impose lengthy approval and retrieval procedures, which may delay data collection and compromise research timelines.
3. Costs: Beyond time constraints, the process of acquiring population data can be costly. Accessing comprehensive databases or obtaining population lists from third-party data providers may involve substantial fees (Sharma, 2017). Furthermore, if the initial sample fails to adequately represent the population, additional rounds of sampling may be required, thereby increasing overall research costs and making the method less economically feasible.
4. Although simple random sampling is designed to minimize bias, it is not entirely immune to it. If the selected sample is too small or does not adequately capture the diversity of the population, certain groups may be underrepresented. This can distort findings and necessitate supplementary sampling methods to correct for representational imbalances.

Data quality is reliant on researcher quality: The quality and reliability of data obtained through simple random sampling are heavily dependent on the researcher's adherence to methodological rigor. Failure to follow established procedures, ask appropriate questions, or maintain objectivity can introduce unintended bias into the study. Such lapses may compromise data integrity and lead to misleading conclusions (Fink, 2023).

**Limitations of Simple Random Sampling Techniques**

Although simple random sampling is a robust and widely used technique, it is not without constraints. Some key limitations associated with this method are outlined below, with the original meaning fully preserved:

1. Population Size: Applying simple random sampling to very large populations can be inefficient and time-intensive, as it requires access to a complete and accurate list of all members of the population.
2. Cost: he method can be expensive to implement, especially when the target population is widely dispersed geographically or difficult to access.
3. Sample Size: To achieve a sample that adequately represents the population, simple random sampling often demands a relatively large sample size, which can increase both workload and financial costs.
4. Underrepresentation: Certain subgroups within the population may be inadequately represented in the final sample, particularly if they constitute a small proportion of the overall population, potentially affecting the generalizability of findings.

## Conclusion

In summary, simple random sampling is essential for promoting reliability, neutrality, and generalizability in marital satisfaction research conducted in Nigeria. Despite practical challenges—particularly in settings that are

complex, unstable, or difficult to access—the method remains fundamental to preserving the credibility of data collection, especially in baseline investigations and studies seeking an accurate reflection of nationwide experiences. Researchers must remain mindful of the method's limitations when examining marital satisfaction in Nigeria and select sampling approaches that best align with their research objectives. While simple random sampling offers unbiased selection, representative coverage, and minimizes the influence of both known and unknown confounding factors, it is also prone to sampling error, can be cumbersome to implement, and may be less effective in populations that are heterogeneous or widely dispersed.

## Recommendation

1. The study recommends that when using simple random sampling technique in marital satisfaction studies, it is crucial to ensure a truly unbiased selection process.
2. Researchers should clearly include defining the population, using a reliable sampling frame, and employing a method like a random number generator for selection by carefully determining the appropriate sample size to balance accuracy and feasibility.
3. In Nigeria, it is imperative that we expose ourselves to a balanced research paradigm, hence there is looseness in this area and the students are alternately at a disadvantaged because of their inability to compete favorably on the global research platform. Recommendations are however made on psychology researchers to include in their study simple random sampling technique while investigating marital satisfaction studies.

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