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## DETERMINING THE SAMPLE SIZE IN QUALITATIVE RESEARCH

Daniela Rusu Mocănașu (a) \*

\*Corresponding author

(a) Associate Professor, "Dunărea de Jos" University, Galati, Romania, E-mail: [daniela.rusu@ugal.ro](mailto:daniela.rusu@ugal.ro)

### *Abstract*

According to most researchers carrying out qualitative researches, adequacy of sample size is a key marker for the research's quality. However, there is no consensus with respect to the exact size of a proper sample. For some authors, the count of investigated units is irrelevant when they assess the sample size's adequacy, as they emphasize the abundance of data submitted by the units included in the sample. Other researchers deem the sample size all-important in order to reach reliable outputs and to ensure the reliability of qualitative researches. No clear methods and rules are given for qualitative investigation in order to guide researches in establishing the sample's proper size. Size determination is a matter of consideration, as the researchers follow various guidelines in order to assess whether their own research sample is proper or not. This paper aims to identify the main external guidelines for a qualitative research project allowing researchers to determine the proper sample size in qualitative research.

**Keywords:** sample size; adequate sample; qualitative research; saturation; purposive sampling;

### 1. INTRODUCTION

Qualitative approach is becoming a more prominent method in carrying out scientific researches in social sciences, education sciences, healthcare, business, management studies, organisation studies, management and assessment of social welfare programs. For instance, more qualitative research were published in the American top-ranked management magazines during the first decades of the 21<sup>st</sup> century than in the last 40 years (van Rijnsoever, 2017).

In order to trust the outputs of qualitative studies, and to know that it is an exact, solid, fine scientific research, we assess it against certain criteria, just as in quantitative researches. Criteria used for assessing qualitative studies should be consistent, to some extent, with the traditional ones (validity, objectivity, generalization), yet they should be alternative (Malterud, 2001, pp. 483-486). According to the previously mentioned authors, the alternative standards of assessing exactness, quality, reliability of the qualitative research output, are credibility, confirmability and transferability. Credibility or reliability of research output match the internal validity from the quantitative study. Confirmability coincides with objectiveness and transferability coincides to universalizability. Malterud deems reliability an essential standard of the qualitative research exactness (2001, p. 483). We need to know that the research output is



reliable (Fossey et al, 2002), and this standard offers this very possibility. Transferability is a key component of qualitative research, which provides us the opportunity to establish whether the research output can apply to other contexts or not.

When assessing the exactness of a research, notwithstanding whether it implies a quantitative, qualitative or combined approach, we pursue a detailed description of the entire investigation approach carried by the researcher, including the sampling strategies. Considering the emergent nature of this type of research, many researchers reason whether sample size matters or not. Most qualitative studies are run on small samples (Sandelowski, 1995, p. 179), as the researches made on 10-respondent samples are quite usual (Lichtman, 2010, p. 142). Sandelowski (1995, p. 179) notices the established practice of an aesthetical principle when appraising a sample size: "...small is beautiful". Patton (2002, p. 248) recommends that qualitative research sample sizes should reasonably cover the studied occurrence, depending on the purpose of the study and the points of interest for stakeholders. In other words, a sample should be proper. According to Vasileiou et al. (2018), its appropriateness is expressed by the composition's appropriateness (cases, units rich in information) and sample size (proper data for fully explaining the occurrence – quantity, quality). Therefore, numbers are important, as well. Thus, sample size becomes a key consideration when assessing the output quality and reliability for many qualitative researches, or, as described by Vasileiou et al. (2018), "a key quality marker of qualitative research".

Decisions on the number of units included in a sample can be a priori or a posteriori made – through an adaptive approach, by reference to saturation (Sim et al., 2018), yet the size should be proper and sufficient for explaining the studied occurrence, irrespective of the sampling method used.

## 2. PROBLEM STATEMENT

The question of how large a sample should be in qualitative research is one of the representative debate topics, retrospectively to the trust we should put in a study carried under a qualitative design. Analysing the professional literature, we note that there is no consensus of methodologists and practitioners with respect to sample size – which vary between 1 and 350 units included in a sample, its size depending of a plurality of factors – scope of research, type of approach, epistemological attitude, researcher's experience, the journal where they publish, financing, time, perception of study assessors' expectations, etc. We retrieve a variation in the used sample size for qualitative research specific types as well, from one researcher to another.

Moreover, there are no general numerical directions in qualitative research (Guest et al., 2006, p. 60), clear rules or methods guiding the researcher how to obtain a properly sized sample (Kindsiko & Poltimäe, 2019; Lichtman, 2010; Malterud et al., 2015; van Rijnsoever, 2017). Patton (2002, p. 248) suggests orientation towards a minimal size, yet based on a "reasonable" coverage of the studied occurrence. Most researchers use the concept of "saturation", such concept being borrowed from grounded theory, in order to assess whether the sample size is proper or not (Malterud et al., 2015; Sandelowski, 1995). According to this principle, a sample has a proper size if it is large enough in order to answer the research's questions, to achieve the study's purpose. Saturation is achieved when any further data collection would not result in the identification of a new theoretical category that would be useful for understanding and explaining the analysed occurrence. Yet, the meaning of "saturation" grew over the years. For instance, Weller et al. (2019) proposes the use of saturation as salience, after having noticed a direct link between salience and prevalence of an item or theme/ behaviour in the studied population. According to such use of the "saturation" tool, sample size can be of 10 units if the purpose of the research is to explore the most prevalent ideas, or a larger size if the research aims to explore a broader range of ideas.

Moreover, there are no clear rules and methods that might convince the researcher there is no reasonable doubt for achieving saturation, irrespective of its operationalization (theoretical or thematic saturation, data saturation, code saturation, meaning saturation, saturation as salience, etc.).

Such inconveniences result in insecurity, which can be observed in the research reports by the lack of justification and transparency on how sample size sufficiency has been attained. Analysing a number of 845 qualitative studies, Kindsiko & Poltimäe (2019) finds that most of them do not justify how

they assessed sample “sufficiency” and 10% of them indicate the saturation point as an assessment tool. Authors believe that such mentioning would be owed to the perception of reviewers’ expectations.

Therefore, the minimal, sufficient size of a sample required to achieve the purpose of the research is hard to determine. Choice of proper sample size is still a field of concept debate and practical uncertainty (Vasileiou et al, 2018).

### **3. RESEARCH QUESTIONS**

Which are the main extrinsic milestones of a qualitative research project used as guidelines by researchers when they assess a sample size as sufficient? Is there paid greater importance to extrinsic factors of the research project when determining the proper sample size, as compared to the factors relating to methodological-epistemological considerations, which are specific to the investigation approach?

### **4. PURPOSE OF THE STUDY**

In this paper we aim to identify the most frequent extrinsic factors of a research project that impact upon the assessment of the qualitative research’s sample size sufficiency. We do believe that lack of consensus among methodologists and experts in the field in terms of qualitative research’s sample size and of various limitations and barriers found across the study, determine both unexperienced and experienced researchers to pay different importance to various specific parameters of their studies, the extrinsic ones being prevalent. Moreover, we would like to identify the role played by extrinsic factors in the sample size determination.

### **5. RESEARCH METHODS**

Within this study we analysed research methodology papers and articles published over the last two decades to include qualitative researches. To that effect, we have only kept papers with a greater impact upon researchers developing this type of study, i.e. most quoted papers. In order to identify such papers we used Google Scholar.

### **6. FINDINGS**

Determination of sample size in quality research is affected by multiple factors, including the research topic, questions the research must answer to, research complexity, theoretical framework, epistemological tradition, research’s type of approach, used methods, research population’s structure and access thereto, resources and time at disposal for finalising the investigation, etc. Methodologist reunite them into two large categories, i.e. parameters relating to epistemological-methodological considerations and parameters related to practical research considerations. The first category brings forward the intrinsic determining factors of research projects, to which researchers should pay the greatest importance each time they assess sample size’s sufficiency - appropriateness (Flick, 2012, p.27).

Given the nature of qualitative research and type of collected data, there are no “hard” rules for how many units should be included in the research sample (Lichtman, 2010, p. 142) or universal numeric recommendations concerning the sample size (Kindsiko & Poltimäe, 2019; Vasileioiu et al., 2018). There are few formal statistical orientations to govern the estimation of a sample size (Sim et al., 2018, Marshall et al., 2013). As noted by Sandelowski (1995, p. 179), assessment of sample size’s appropriateness becomes a “matter of judgement”, depending on the milestones retained in the attention field by the researcher.

Over the last decades, certain researchers analysed qualitative studies published in various magazines, from different countries and various fields (social sciences, education, healthcare, assessment of social welfare programs, management and organizations) and to collect opinions of the researchers who are performing qualitative researches, in order to identify the factors affecting the determination of a proper sample size (Flick, 2012; Baker & Edwards, 2012; Sim et al., Marshall et al., 2013; Kindsiko & Poltimäe, 2019). Their findings point to a greater importance of practical considerations and other sample

size determining factors, extrinsic to the research project, rather than of methodological-epistemological considerations.

The most frequently mentioned extrinsic factors impacting upon the sample size were the following four parameters: a) recommendations and perception of financing bodies' expectations; b) recommendations and perception of study assessors' expectations; and c) accessibility to research's population. We shall hereinafter detail the influence of such parameters on the qualitative research's sample size.

### **6.1. Recommendations and perception of financing bodies' expectations**

Financial resources represent a major milestone for the researcher. Qualitative research projects are expensive, requesting material and financial resources, time and specialised human capital. Lack of or poor financial resources is a restraint with a massive impact on the sample size, forcing the researcher to refrain from including new cases in the sample, even if they were important for achieving the research's purpose, thus governing the projection and development of the research process. Methodologist and experts in this field say that researchers incline to include fewer units in samples when they lack financing. For instance, a survey made by Kindsiko & Poltimäe (2019) on 855 organisational qualitative researches published in top-ranked US and UK publications over a 11-year period (2007-2017), revealed a researchers' trend to reduce the sample size whenever they lack external financing (less than 60% of the studies are reaching 30 or more units per sample, with an average of 42 units). Financial limitations have major implications on the quality of research and reliability of its outputs, as the researcher is not exploring sufficient cases any longer so that to get to provide an explanation of the investigated occurrence, according to the proposed purpose. Most large-scale studies are dependant on external financing.

Most funding bodies impose upon the researchers to estimate and provide the number of units included in a sample (Guest et al., 2006; Baker și Edwards, 2012; Sim et al., 2018; Kindsiko & Poltimäe, 2019). The express requirements of the funding bodies and/or the perception of such requirements have an impact on the sample size. We may notice that whenever the research is funded, the sample size is larger. For instance, Adler & Adler (2012, pp. 8-9) identifies the researchers' trend to determine larger samples (100 and more respondents, at an average of 50) when they have external funding, as compared to the small sizes highlighted in non-funded researches (few studies reach 30 or more respondents, most samples include 6-12 units). The same trend has been observed by Kindsiko & Poltimäe (2019), at an average sample size of approx. 50.

Provision of a certain sample size in funding protocols coerce the researcher to explore as many units as they declared, even if they were not required, which has deep scientific implications – lack of understanding of the qualitative research's iterative approach, as the number of units included in a sample couldn't be known prior to go on the field (Adler & Adler, 2012, p. 9), and also ethical implications (waste of financial resources, material resources, time), the researchers trending to pay more attention to proving the sample's "goodness".

### **6.2. Recommendations and perception of study assessors' expectations**

The requirements expressly provided by the qualitative study's assessors (members of ethical boards, boards of reviewers, boards for undergraduate / postgraduate / doctoral thesis, editor boards of magazines, etc.) on the minimal sample size and/or the perception of assessors' expectation, generated by the assessment of study's quality and its selection for being accepted as valid by the academic community and/or for publishing purposes, have an impact on the sample size.

Assessors' requirements are pressing or are perceived as such, which results in larger sample sizes. Researchers trend to increase the sample size so as to convince any eager criticist on their research's validity and quality. Most assessors use saturation as the tool for judging whether a sample is "good", sufficient or not. For instance, methodologists recommend an average size within academic research context, such as 30 for master degree, 50 for doctoral degree. The actual sample size varies a lot, from 1 to over 100.

The perception of the values embraced by the members of those boards, the epistemological tradition promoted by the academic community within the study's area, institutional regulation and purposes of such institutions lead to the creation of certain representations with respect to the standards used by assessors to assess qualitative research, therefore to the study's sample size, which are often contrasting. For instance, following the analysis of overviews of interview-based qualitative researches included in a PhD papers in Great Britain and Ireland, Mason (2010 quoted by Brayman, 2012, p. 18) finds a variation of the sample size from 1 to 95 (averages being of 31 in the first case and 28 in the second).

The research region – one of the cultural factors, plays a significant role in determining the qualitative research's sample size. Through values to which members of the magazine's board of editors adhere, regulations of institutions (Marshall et al., 2013, p. 19) and epistemological tradition, standards are being drafted for the assessment of qualitative researches for publishing purposes, including the sample size. Marshall et al. (2013) have analysed 83 interview-based qualitative studies, published in top-ranked IT magazines from USA, Canada, Asia and Europe, so as to identify to what extent the cultural factor (publishing magazine, author count, region where the journal publishing the study is located in) affected the sample size. They identified a sample size pattern, correlating to the journal where the study is published in (pp. 11-16). Authors publishing in US and Canada journals trend to perform studies on larger samples (50% of the studies include 30 or less people in the sample) as compared to authors whose papers are published by journals in Europe and Asia, who trend to use small size samples (77% studies published in Europe and 71% included 30 or less people in the sample). The same pattern was found by Kindsiko, & Poltimäe (2019).

Multiple authors find that greater importance is paid to assessors' requirements, cultural factors (the publishing journal, study's region) as compared to methodologists' recommendations or previously published relevant papers (guidelines relating to epistemological-methodological considerations). Vasileiou et al. (2018) found, after having examined 214 articles of healthcare qualitative researches dating from 2003-2017, that pragmatic arguments are the secondly ranked criterion for supporting sample size.

### **6.3. Accessibility to research's population**

Inconvenience in finding, establishing and maintaining contact with persons, i.e. access to population, is another external factor to affect the researcher's choice of sample size, in terms of narrowing it down. Such inconveniences are often in research projects, gaining access and type of access being key issues faced by researchers (Saunders et al., 2003, p. 82). In the collection edited by Beker & Edwards (2012), which gathers answers of methodologists and researchers from various countries to the question "How large a sample should be?" relating to interview-based qualitative research, we find that population accessing inconveniences result in a small sample size, while a "good" accessibility may increase its size.

When studying hidden or hardly accessible populations, it is very hard for researchers to identify cases or respondents holding valuable information with respect to the research project, which are also willing to participate thereto. For instance, when I have studied the cultural identity of Horahane Roma from Dobrogea region, Romania – a marginalised ethnic group, with a paternal clan structure, in which Roma male may have up to five wives, marriages taking place between cousins-german, identification of subjects inclined to disclose information was a constant challenge (Rusu Mocănașu, 2014). Under such research situations, "a small number of cases or subjects may be very valuable and may represent a proper number for the research project" (Adler & Adler, 2012, p. 9). According to those two methodologists, the research sample shall consist in the accessible persons from the research targeted groups. Poles apart, when cases are easily retrievable and there are no inconveniences in establishing and maintaining contact with persons virtually participating to the research, researchers may include more persons in the sample, so they are able to collect sufficient data for accounting the investigated occurrence. Within academic environment context, in case of interview-based qualitative researches, methodologists Adler & Adler (2012, pp. 8-10) suggest students to orientate towards a small size sample (6-12 persons or whatever



many they find) when accessibility to persons from research population is limited, and a moderate size of 30 subjects, which can be increased up to 60 subjects, whenever there is a good accessibility (easily retrievable and abundant subjects).

## 7. CONCLUSION

In order to obtain a positive assessment from reviewers and/or for their qualitative studies to be accepted, researchers pay attention, in the first place, to certain extrinsic parameters of research project, factors that are not related to the nature of qualitative research, such as scope of study, investigation questions or other epistemological-methodological considerations.

The most frequently pursued milestones by researchers for assessing their sample size as “sufficient”, proper for achieving the study’s purpose, as it results from the mentions included within the studied researches, are: recommendations and perception of financing bodies’ expectations; recommendations and perception of study assessors’ expectations (members of undergraduate / postgraduate / PhD boards; members of ethical boards; members of the board of editors from the publications such researches are published in) and accessibility to research’s population.

Very few researchers justify how they assessed the sample size sufficiency, thus leading to a reliability downturn with respect to the outcome of the performed research. Moreover, ethical implications may arise, i.e. waste of research funding and of participants’ time.

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