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Dentistry

A PRIMER ON THE APPLICATION OF QUALITATIVE RESEARCH IN DENTISTRY.

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ABSTRACT Dental research being predominantly quantitative in nature is opening up to the arena of qualitative research. The requisite for deeper understanding of oral health disparities and the establishment of the role of social determinants of oral health has fueled this change. Methods used include in-depth interviews, focus groups, and observations to understand patient experiences, beliefs, and attitudes, providing a holistic view beyond numbers. The approach is especially valuable in understanding the complex social phenomena within dental settings, helping to improve policy and patient care. The goal is to gain in-depth, contextual understanding of social interactions and experiences related to oral health that cannot be captured through quantitative studies. This paper focuses on the overview of steps in qualitative research and how this type of research can be applied in dental specialty.

KEYWORDS : Oral Health, Social Determinants, Contextual Insights, Patient-Centered Care

INTRODUCTION

Truth in philosophical discourse is either objective or subjective. All progress is born of enquiry. Doubt is often better than overconfidence for it leads to enquiry and that leads to invention[1].We are currently living in an exciting period of history where innovation in every field is a possibility and a necessity. The word research is composed of two syllables “re” and “search”. The dictionary defines 're' as again and 'search' means to examine closely and carefully, to test and to probe[2]. In essence, research is an attempt to capture the truth.

Quantitative research has traditionally dominated much of healthcare research. It is driven by evidence-based health movement, with systematic reviews and randomized controlled trials as the highest level of evidence. However, increasingly researchers are beginning to question the very idea of evidence based medicine[3]. In dentistry the dominant approach to research has always been quantitative. Indeed, a review of dental literature a decade ago found only thirty-seven articles related to dentistry using qualitative methods[3]. Dentistry being the culmination of 'art and science', involves human experiences and the value of qualitative research is increasingly being recognized.

The Big Categorization Of Research: Quantitative And Qualitative

Quantitative research refers to the systematic and empirical investigation of social phenomena via statistical, mathematical and/or computational techniques. The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. In a nutshell, quantitative research generates numerical data or information that can be converted into numbers[4].

Qualitative research, on the other hand, is the non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationship. Qualitative research aims to gather an in-depth understanding of human behavior and the reasons that govern such behavior. The qualitative method investigates the “why” and “how” of decision making not just “what”, “where” and “when”. Qualitative Research includes the task of recording data via variety of methods (interviews, observation, field notes, etc.), coding and categorizing the collected data (using a variety of clustering and classification schemes), attaching concepts to the categories, linking, and combining (integrating) abstract concepts, creating theory from emerging themes, and writing an understanding of the formulated theories[5].

Qualitative methods help researchers explore the meaning and significance of the occurrence of an event from the point of view of the study participants. Qualitative research does not seek to provide quantified answers to research questions and the research tends to be a more naturalistic type[6]. It can be used to interpret, explore, or obtain a deeper understanding of certain aspects of human beliefs, attitudes, or behaviour such as people's personal experiences and perspectives (e.g., factors that influence dental attendance). It is the ideal suited method of research where little is known or understood, or where quantitative research methods cannot be applied (e.g., dental fear). Furthermore, it can overcome literacy problems where, children, minors, or illiterates are involved[7].

Study Design Considerations And Capturing The Truth

Research question being central to the research process, it is imperative to establish coherence between the research question and the philosophical position being adopted for the study. In both qualitative and quantitative research methods, it is essential for the researcher to be clear about the philosophical assumptions being made[4]. When it comes to qualitative research there is no agreed upon structure or a particular study design. This form of research comes with the added advantage of evolving the study design, as the study progresses. Still certain preliminary considerations in the study design are important to yield good quality research. A thorough literature search is recommended to define the problem, or the question being addressed. The researcher's own background and interests are important factors in a qualitative research design, as the researcher is the instrument of data collection[7].

Approaches For Conducting Qualitative Studies Adopted In Dentistry.

There are several approaches for conducting qualitative studies, although five main approaches have been documented. These are Narrative enquiry, Phenomenology, Grounded theory, Ethnography and Case study[8].

1) Narrative enquiry

In a Narrative study, focus is on stories told by individuals or a group (many people). Researchers write narratives about experiences of individuals, describe a life experience, and discuss the meaning of the experience with the individual. Narrative inquiry is also adopted in 'phenomenological research', therefore pure narrative research studies are rare. Studies using this approach are scarce in dentistry as the line between narrative approach and phenomenology is ambiguous. The difference is that, while Narrative research revolves around a chain of experiences and how they are interconnected, Phenomenology revolves around interpreting the meaning of these very experiences. In dentistry, data collected from patients by interview is likely to take a narrative form, in which, subjects speak of their complaints, pain,

discomfort, and dental care experiences.

2) Phenomenology

Phenomenology seeks to understand and describe the "essence" of a 'lived experience' associated with a concept or phenomenon. This approach can be used to study several individuals who had the same experience. The two broad sub-types in Phenomenology are transcendental (descriptive) and interpretive (hermeneutic) phenomenology. In descriptive phenomenology, "bracketing off" is done to get the essence of the phenomenon and later, the researcher interprets its meaning. Interpretive phenomenology is more complex with consideration of temporality (time) as an important factor while descriptive section focuses on correlation of the noema of experience (the 'what') and the noesis (the 'how it is experienced'). This approach is widely adopted in dental qualitative studies. It gives insights on the lived experiences of patients suffering from dental diseases and associated symptoms like oral cancer, dental pain and anxiety. The approach can explore the attitude among dental students and trainees, after introducing or transitioning into a new dental education program. Perceptions regarding oral health in special groups or disadvantaged community can be understood by a phenomenological lens as an alternative to (KAP) Knowledge, Attitude and Practice studies. Sensitive issues like dentist migration can be understood in-depth following this method[9]. Leadership program evaluation and qualities desired in dental leaders can be discovered using a phenomenological method.

3) Ethnography

The ethnographic approach calls for interpretation and description of ethnic groups. The approach is based on observing the participants in their natural environment. Ideally ethnographers should adopt 'live and work' approach to collect the data and the process is deemed to be time consuming. This is one of the reasons, why there is a dearth of ethnographic studies in the specialty. In dentistry this may be used to interpret shared patterns and values of a large ethnic group for certain dental disease patterns such as caries and periodontitis. Oral health disparities among the minorities or disadvantaged populations and multicultural communities are understood by adopting this method[10,11].

4) Case Study

Case study approach seeks to explore an issue through one or more described cases within a setting. The idea is to develop an in-depth analysis of a case or many cases. Patient care services may be described as a case, where the focus will be on understanding the 'care' and the patient 'needs'. Majority of case studies in dentistry are based on the introduction of a new education system and its sustainability, by interviewing dental students and faculty[12].

5) Grounded Theory

Grounded theory is an inductive methodology that provides systematic guidelines for gathering, synthesizing, analyzing, and conceptualizing qualitative data for the purpose of theory construction. This approach will provide focused, abstract, conceptual theories that explain the studied empirical phenomena[13]. The approach is very widely used in dental research for exploring contexts ranging from dental fear which is a commonly researched topic using qualitative research to clinical implications which are dominated by quantitative research. Theoretical reasoning for dental fear and regular dental treatment can be understood by this approach. Perceptions regarding priority of oral health among special groups and women can be revealed and theoretical assumptions can be formulated. This approach can also be applied to explore research process related questions like information seeking pattern of dental researchers and how dentists read a technical article adding to wide range of grounded theory. Research questions which have clinical implications like demand for dental safety glasses, academic surgical workplace and decision making process in patients with implant therapy can be understood using this approach.

Methods Of Data Collection

Interviews and focus groups are the most common methods of data collection in qualitative oral care research. Interview method can be used to explore the views, beliefs, and motivations of individual participants. Focus groups use group dynamics to generate qualitative data[14]. A study has combined interviews and focus groups to identify barriers in the development of an integrated approach to caries prevention in young children. This study helped gain more information from the healthcare professionals. It revealed that the focus was more on dental pain due to time constraints and the need to address the immediate need.

Analysis Of Data In Qualitative Research

Analyzing and presenting qualitative data is one of the most confusing aspects of qualitative research. The two fundamental approaches used are deductive and inductive approaches. The adoption of either of these approaches is based on aim of the research study. The deductive approach makes use of a structure or predetermined framework to analyze data. Here the researcher imposes his/her structure or theories on the data. There is a possibility of severely limiting theme or theory development. On the contrary the inductive approach involves analyzing data with little or no predetermined theory, structure, or framework. This is the most common approach to analyze qualitative data, even though the process is labor intensive and time consuming. Approaches like content analysis, framework analysis and structural analysis are also categorized in qualitative data analysis. Content analysis where categorization of themes is performed is the most common one and is widely used in dental research[15]. Computer assisted qualitative data analysis software are available for data entry and analysis such as Atlas.ti, MaxQDA and Nvivo.

Rigor In Qualitative Research

Qualitative research is argued to have questionable rigor due to the subjective nature of the data collected. The external validity of qualitative findings is highly debated and is often mentioned as the limitation of the study design. This dilemma occurs when researchers compare quantitative to qualitative methods, with the notion that, in the end research when repeated, should yield similar results. To improve this scenario, qualitative researchers are working hard to bring in methods to ensure rigor in this arm of research without loosing the essence of qualitative research which is "Subjectivity". Credibility, transferability, dependability, and confirmability of study findings are few terms used in qualitative research to ensure rigor[16].

Credibility is obtained when the readers can relate to the experience depicted in the findings if they have gone through the same. This term embodies the truth value of the study findings and can be achieved by different techniques like: Reflexivity, Member checking (participant feedback), peer discussion, prolonged engagement with participants etc. Transferability of data is synonymous to external validity of findings in qualitative research. This is obtained by detailed explanation of study population characteristics and data collection methods. Dependability is what reliability embodies in quantitative research, another researcher must be able to replicate the data collection process and arrive at similar findings. Detailed description of study process and step-by-step repetition of study to see whether similar results are obtained can be used to confirm dependability. Confirmability depends on the researcher and revolves around how open the researcher is to study process and results. Maintenance of reflexive journal and disclosure of the researchers predispositions while data handling can be mentioned to ensure confirmability[17].But the use of these techniques is limited in dental qualitative research studies, as the quality of published articles is found to be mediocre. It is recommended to use qualitative critical appraisal tools like Critical Appraisal Skills Program framework (CASP), Evaluation Tool for Qualitative Studies (ETQS) and Joanna Briggs Institute Tool to ensure rigor and systematic quality assessment of qualitative studies[18].

CONCLUSION:

There is a seemingly endless debate over qualitative research versus quantitative research; and a lack of consensus on the characteristics of good qualitative research. Nonetheless, qualitative research methods certainly have a place in dentistry, principally for problem definition, hypotheses generation and exploring areas that have not been adequately understood. Qualitative studies in health care provide a significant insight into how social factors can influence the process of care and related outcomes. It can provide a deeper understanding of human experiences and interpretations of concepts such as health, illness and health services - all issues that affect the wellbeing of individuals and population. For dentistry to benefit from qualitative approaches, there is a need for researchers to be adequately trained and experienced to capture the 'truth', which infact is the essence of research.

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