CRITERIA FOR ASSESSING AND ENSURING THE TRUSTWORTHINESS IN QUALITATIVE RESEARCH

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ABSTRACT

The trustworthiness of qualitative data has been debatable, yet it has strong support from its supporters. However, the importance and worth of qualitative data cannot be undermined. This paper presents a critical review of the trustworthiness of the qualitative data. The degree of trustworthiness of qualitative research can be measured by ensuring the credibility, transferability, dependability, and conformability of research design, process, and action. The guarantee of trustworthiness in qualitative research is more complex than in quantitative research due to its subjective nature. Many researchers and experts denied the generalizability of qualitative research. However, few researchers, like Guba (1985), developed a widely accepted model and strategies to ensure the trustworthiness and generalizability of qualitative research. Credibility is like internal validity in quantitative analysis and provides the actual data about the phenomenon. Transferability shows the degree of application of the research finding in other exact natures of context, people, groups, and settings. If the findings of one study are replicated in a similar population, condition, or context, then the findings are dependable. Neutrality is the degree of fairness of results consisting of purity of initial responses and bias-free.

Key Words: Credibility; Dependable; Neutrality; Transferability; Trustworthiness; Guba Model

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1. Introduction

Qualitative research is generally viewed as a soft science and criticised for lacking generalizability and trustworthiness compared to quantitative research (Mays & Pope, 1995). Every research study finding should have the quality of generalizability. It is a common

question: Why should any research result be considered the same for others apart from the research population? The question may be valid that every individual is unique, and the population consists of these remarkable individuals who may differ from others. This question needs a satisfactory answer in both qualitative and quantitative research results.

1.1 Underlying Research Problem

The case for qualitative research, in this regard, is more complicated as qualitative research is an in-depth study that increases the subjectivity of results. Koch & Harrington (1998) view qualitative research as subjective with involved researcher bias, lacking trustworthiness and generalizability. This view shows that qualitative research is more personal and needs inclusive measures to control preferences and minimise subjectivity.

1.2 Varying Research Perspective

Different research paradigms have different perspectives regarding subjectivity in qualitative research. The positivists generally criticised qualitative research's trustworthiness because they considered the validity and reliability of qualitative research not to suit the naturistic work. Positivists favour quantitative research, where validity and reliability ensure the generalizability of research findings. The stress of positivism is on objectivity. However, there are different paradigms, and researchers have different perspectives on research and its findings. However, qualitative research is the only different approach to studying humans and is not inferior to any other research approach. This research approach emphasises discovering in-depth individual experiences, exploring the human phenomenon, and helping in theory development (Vishnevsky & Beanlands, 2004).

1.3 Importance of Trustworthiness in Qualitative Research

The most important factor influencing the rigour of qualitative research investigations is trustworthiness (Amankwaa, 2016; Eryilmaz, 2022). It is generally accepted that quantitative and qualitative research designs need credibility to generalise the findings. Every research design has its techniques to enhance credibility. The efforts and ability of researchers in the qualitative study are indications of trustworthiness. Validity and reliability are also important to ensure the study's trustworthiness and credibility; transferability words are used in place of validity and reliability in qualitative research. Every researcher accepts the importance of rigour, objectivity,

and consistency of research, and they try to develop criteria to ensure trustworthiness. Lincoln and Guba (1985) gave one of the most popular and generally accepted criteria for the trustworthiness of qualitative research. They indicated four important concepts, credibility, transferability, dependability, and conformability, to increase trustworthiness (Ghafouri & Ofoghi, 2016; Earnest, 2020; Eryilmaz, 2022; Enworo, 2023; Riazi & Ghanbar, 2023).

According to Lincoln and Guba (1985), credibility is the process, just like internal validity positivists recommended for the rigour of quantitative research. In qualitative research design, transferability is similar to external validity or generalizability in quantitative research design. Likewise, dependability is like reliability, and conformability is like objectivity, which increases the trustworthiness of qualitative research. These recommended constructs have been recognised by several researchers (Riazi & Ghanbar, 2023).

There are several constructs which help promote trustworthiness in qualitative research. The systematic research design, the researcher's credibility, the findings' acceptability, and appropriate research methods decide the trustworthiness of qualitative research (Rose & Johnson, 2020; Johnson & Parry, 2015; Lincoln & Guba, 1985). It means that the research design appropriateness is necessary to generalise the results. The personality and status of the researcher in society regarding believability is also an essential aspect of gauging the generalizability of research findings.

The assurance of trustworthiness in qualitative research is necessary as the researcher claims that it is trustworthiness that provides qualitative research with a prominent place in the academic world. It is a general perception that qualitative studies must be credible (Creswell & Miller, 2000). Thus, to increase trustworthiness in qualitative research, multiple aspects such as epistemological understanding, in-depth literature review skills, theoretical understanding, and argument skills are important for the researcher to master. Other elements such as various data collection techniques, appropriate data analysis procedures, connection with theories, and interaction among these concepts are also important to understand and apply trustworthiness in qualitative research. Additionally, addressing the validity and reliability helps improve the study's trustworthiness. Validity and reliability are explained by Creswell (2014) as the researcher checks for the accuracy of findings for the specific research, which is called validity, and reliability is the consistency in results in the same situation by using the same tools.

Reliability indicates the soundness of research by applying appropriate research methods and the procedure used for these methods in qualitative research. The consistency and stability of the methodological approach remain stable over time and space, which are the reliability characteristics. Reliability ensures the replicability of the research project with similar results. On the other hand, validity is the accuracy of research findings, which the researcher tends to research (Creswell & Miller, 2000).

Other researchers also explain the importance of validity and reliability of the trustworthiness of research results. Patton (2014) indicated validity and reliability for qualitative research, understanding the techniques or methods used to guarantee the accuracy, integrity, and validity of findings. The experiences and qualifications of research are other indications of trustworthiness. If the researcher is more educated and expert, more trustworthy results may be achieved. The vital objectives or underlying assumptions also help improve the study's trustworthiness. In qualitative design, the terms and concepts of, Neutrality, Consistency, Credibility, Conformability, Dependability, Applicability, Transferability are used for trustworthiness, as the term reliability is used in quantitative research (Lincoln & Guba, 1985; Paton, 2014; Bazeley, 2013; Flick, 2007; Glesne, 2016; Riazi, & Ghanbar, 2023). The researcher must ensure trustworthiness in qualitative research by providing validity and reliability. To ensure validity, researchers need to understand the different aspects of it. Kvale (1989) indicated three important validity approaches in qualitative research: validation in the investigation, communication, and action (Kvale, 1989). These approaches show the importance of rigorous research planning, accurate questionnaire development and precise application, natural interaction with respondents, and suitable data analysis and interpretation in qualitative research.

The researcher Kvale (1989) also considered researcher experience and literature as important aspects to ensure generalizability, validity, and reliability. This argument indicated the importance of knowledgeable researchers, as research is very technical work, so there must be a learned person to conduct the research. Literature also supported the study results; it clarified different aspects of the subject under investigation by providing data from prominent scholars. The other researchers exploring the phenomenon will help researchers design, conduct, and analyse research studies.

2. Criteria for Assessing the Trustworthiness

2.1 Guba Model of Trustworthiness

The researchers Lincoln and Guba (1985) expressed that the validity and reliability of the concept are replaced by trustworthiness, which is important in establishing confidence in results. This argument indicates that validity, reliability, quality, trustworthiness, and rigour differentiate good research from flawed research, which are all important whatever the research paradigm is**.**

Many researchers developed a trustworthiness model to improve the credibility of qualitative research, such as Kirk and Miller, 1986; and Leininger, 1985 but the Guba model is the most popular and suitable. Guba claimed a need for a specific trustworthiness model for the qualitative researcher to improve the generalizability of research findings (Guba, 1981). Guba proposed a model to assess trustworthiness, which is comparatively conceptually more well-developed than other models. Guba (1981) indicated in his model four important aspects, Credibility, Applicability, Consistency, and Neutrality, equally applicable to both quantitative and qualitative research to improve trustworthiness (Morse, 2015; Staffileno et al., 2021; Riazi & Ghanbar, 2023). Guba suggested different strategies in this model to assess criteria due to philosophical differences in qualitative and quantitative research designs. On the one hand, these strategies are important for qualitative researchers to improve trustworthiness. On the other hand, for readers to assess the value of research results.

2.1.1 Truth Value

Truth value indicates the researcher's confidence regarding the results of subjects or information and the study context (Lincoln & Guba, 1985; Rose & Johnson, 2020). It shows how confident the researcher is about the truth of findings, data, results, and the reliable context from which the data is collected. The study context is important for the generalisation of the research study. Keeping in mind the importance of internal validity and how to manage the threats to internal validity and the validity of instruments used for the study indicated the assessment criteria of truth value (Sandelowski, 1986). The term internal validity is used in qualitative research to control compound variables by the researcher to control or randomise. Qualitative research is subject-oriented and can be obtained from human experiences. In 1985, Guba and Lincoln coined the word credibility for this concept.

2.1.2 Credibility

One of the important criteria for generalizability is internal validity, which shows what is intended to measure. Merriam (1998) expressed that the equivalent concept of internal validity is credibility in the qualitative study. Ensuring trustworthiness (Lincoln & Guba, 1985) is considered credibility the most important factor. The other researcher also viewed the importance of credibility, as the researcher explained that credibility shows the truth of data and respondents' views and their interpretation (Polit & Beck,2012; Cope, 2014; Ghafouri & Ofoghi, 2016; Enworo, 2023; Hanson *et al.*, 2019, p. 1017). Guba (1981) elaborated that internal validity explains only one possible reality the researcher wants to measure. Guba further explained that if the concept of one reality is being changed with multiple realities, as postmodernists view, the researcher has to represent those realities by testing findings against various groups or experts regarding the phenomenon. This argument indicates that the credibility in qualitative research and internal reliability in quantitative research is only applicable to trustworthiness if the researchers believe in one single reality.

The researcher Sandelowski (1986) explains that if the respondents of the study or any individual immediately recognise the explanation or the interpretation made by the researcher about the human experience and find that experiences they had, the findings are credible. If the study's findings were similar to human experiences and commonly accepted, the study is credible. The other aspect of credibility is the researcher's experiences in the field of research. The researcher's explanation of his history of research experience and verifying research findings enhance credibility. It means that in qualitative research, the researcher must explain his research experiences comprehensively so that the readers may infer the result's credibility in the light of the researcher's authority. The other aspect of credibility is the easy understanding of findings. The study is credible if the qualitative data results are recognised by readers easily and shared adequately with others. The researcher has to fully engage and use proper observation methods and audit trails as strategies to improve credibility. Truth value is perhaps one of the most important criteria for assessing qualitative research.

2.1.3 Applicability/ Transferability

Applicability shows the degree of application of the research findings in the exact nature of context, people, groups, and settings. The term transferability is also used for applicability. The generalizability of research findings in other contexts is considered the applicability of research

data Lincoln and Guba (1985), (Houghton et al., 2013; Polit & Beck,2 012; Cope, 2014; Ghafouri & Ofoghi, 2016; Riazi & Ghanbar, 2023). The qualitative study result will be considered applicable when the one who was not part of the study or the readers can associate it with their own experiences. The recognition of findings by a large population shows the applicability of results in qualitative research. It is also considered that the degree of external threat to validity management will decide the degree of applicability in qualitative research. The establishment and use of sampling techniques are important in generalising findings from a sample to a large population, which is the quality of external validity (Payton, 1979).

The positivist argued that the study's findings must be generalisable for the wider population. The qualitative study sample is always specific to small numbers of individuals covering small numbers of the particular environment, so generally, it is considered that the findings or conclusions are not suitable to use or apply to other situations or populations. According to Erlandson et al. (1993), naturalistic inquiries denied generalizability because they argued that there are always specific individuals and contexts in which the study is conducted. It means that every individual is unique, and every context is different, so how can a study find my generalised? This question may also apply to the quantitative research study. It is commonly understood that every individual is also part of society.

In contrast, in response to individual uniqueness, the researchers Stake (1994) and Denscomb (1998) argued that every unique case is also part of a large group, so the unique case's result may be generalised. If the individuals recognised that the situation of the study is similar, they are living; they could relate the results to their situation. The argument increases the importance of the explanation context knowledge of the study that individuals can repeat with their context to understand the study findings comprehensively. Guba (1985) stresses the researcher's responsibility to ensure the availability of valuable, comprehensive contextual information on fieldwork, which will help the reader understand and infer results regarding them in context. Ensuring the availability of both aspects may provide the reader's confidence in transforming the development to other situations. A sufficient description of the understudied phenomenon should be included, which will be helpful to the reader in understanding the phenomenon.

There are two perspectives regarding the applicability of qualitative research. The first perspective is that the applicability or generalisation of qualitative data is not always possible.

The propagandas stress that the qualitative method is always conducted in a natural setting with less control of variables. Each natural set is unique, and the findings will be unique, too, which is not generalised. Sandelowski (1986) considered generalisation an illusion because, according to him, every researcher, research situation, research interaction, and information is unique and different. Furthermore, qualitative research aims to investigate a particular phenomenon rather than to generalise the phenomenon. So, the generalizability or the applicability of research data is out of the question.

The second perspective stresses the generalizability or applicability of the qualitative method. Guba (1981) is the prominent propagator of the second perspective and fevered the applicability of the qualitative method and developed the criteria to assess the applicability. According to him, the research must adhere to this assessment criterion, and the study is deemed credible when the findings are applicable outside of the study. Furthermore, he explained that the degree of similarity of fitness indicated the quality of the study. Lincoln and Guba (1985) argued that applicability is more than the researcher's responsibility to transfer data to the new situation or population than the original situation. They stressed that as comprehensive as the description of data regarding the compression of the situation would be, the chances of applicability will have increased.

2.1.4 Dependability/ Consistency

Consistency or dependability of data is the third criterion of trustworthiness. Polit and Black (2012) explain that dependability is data consistency over similar contexts (Polit & Black, 2012; Cope, 2014; Ghafouri & Ofoghi, 2016; Hanson *et al.*, 2019; Enworo, 2023). If the findings of one study are replicated in a similar population, condition, or context, the findings are dependable (Koch, 2006). Every research data must be replicated and have a degree of consistency to ensure trustworthiness. The dependability in qualitative research means the reliability of the research study, as indicated by the researcher. In quantitative analysis, the term reliability is used for consistency, and it is the criterion expressing the consistency, stability, and equivalence of research results (Sandelowski, 1986; Riazi & Ghanbar, 2023). The positivist considered reliability as the technique of consistency. If the study were conducted again with the same methods, similar participants, and similar contexts, similar results would be achieved, and the study would be reliable.

Nevertheless, Fidel (1993), Marshall, and Rossman (1999) argued that this would be difficult in qualitative research due to its subjective nature, context, and situation. Qualitative research differs from quantitative research, and it is challenging to ensure consistency but not impossible. Researchers indicated criteria for insurance of dependability.

Florio-Ruane (1991) viewed that, in qualitative research, the researcher's observation is very knotted to the situation. The researcher elaborated that “published descriptions of one study are fixed, contextualised, and frozen. The use of this description for another study will not work effectively. It indicated that there must be a comprehensive contextualised description of every study to support the reader in understanding the results.

Infect the quantitative perspective regarding consistency is based on a single reality. If it applies to the assumption of multiple realities, then this concept of consistency will be irrelevant. Qualitative research, unlike quantitative, is not very controlled in nature, so extraneous and unexpected variables can impact the reliability or trustworthiness. The researcher Duffy (1985) differentiated the structured experimental design from unstructured and natural qualitative research strategies. Furthermore, the qualitative researcher’s main quality is to explore the originality of phenomena by using in-depth tools in an open environment rather than control. It is also an important point to note that the instrument in qualitative research is the researcher and respondent to assess the consistency. Moreover, qualitative research aims to explore the uniqueness of the human situation, the variation of the situation, and subjective identification, not the identical repetition (Field & Morse, 1985).

On the other hand, Lincoln and Guba (1981) indicated strong ties between credibility and dependability. Furthermore, they stress the overlapping method, such as individual interviews and focus group discussions, and the degree of consistency will increase by triangulation. Guba's concept of dependability can be understood as traceable variability. The sources to understand the variability improvement are the richness of researcher insight regarding study and sharing of information and life situations. Additionally, qualitative researchers value the range of experiences, so all kinds of situations may be included. Researchers must identify the outlying data in qualitative research to define the limits of experiences or phenomena. Every member in the group or part of the study must be considered important.

In qualitative research, to ensure dependability, the research process must have been described in detail so that the other researcher who intends to conduct a similar study can repeat the process. The research process must be considered. The prototype model and detailed discretion will help the readers assess and understand the research procedure and results in light of this procedure.

2.1.5 Neutrality / Conformability

Neutrality is suggested in the fourth criterion of trustworthiness: the degree of unbiasedness of the researcher in the research and interpretation process. Guba (1981) indicated it, including motivational and perspective prejudices. Some researchers used the word conformability and considered it the data consisting of participant responses rather than researcher choices, viewpoints, and biases (Polit & Beck, 2012; Cope, 2014). The impartial nature of the researcher can have derived results from the participant's responses objectively. The researcher can explain to imitate conformability about the conclusion, interpretation, and results by exemplifying that it was derived directly from data (Ghafouri & Ofoghi, 2016; Olmos-Vega et al., 2022; Riazi & Ghanbar, 2023; Enworo, 2023).

The direct quotes of participants' inclusion in reporting the data will help improve the neutrality of the research. Patton (1987) considered conformability or objectivity as a science that can be obtained by using appropriate instruments and skills to control human perception.

Furthermore, the researcher indicated that data collection tools are designed and applied by humans, and biases are inevitable, so it's impossible to ensure absolute objectivity. It shows that the subjective nature of humans will always affect research planning, implementation, and action. Researcher biases and prejudice are always there to decrease neutrality. In qualitative research, objectivity is used for neutrality and ensured through an appropriate methodology that establishes validity and reliability. In quantitative analysis, proper distance between researcher and respondent is necessary to ensure reliability to control researcher bias by randomisation, processes, and instruments. The propagators argued that this is scientifically important to control the influences of the researcher on respondents and respondents on the researcher and ultimately on the study.

On the other hand, qualitative research encourages the closeness of researcher and respondent to ensure the quality of findings. The worth of data can be boosted by increasing contacts of researcher and respondent and the observation period. Lincoln and Guba (1985) argued that qualitative research data is more important than a researcher's to enhance neutrality. So, it is crucial to consider the neutrality of data instead of the neutrality of the researcher. Furthermore, they indicated it could achieve neutrality after establishing truth value and applicability.

Table 1: Trustworthiness in Qualitative Research, Criteria and Strategies

Criteria	Credibility	Transferability/ Applicability	Dependability/ Consistency	Conformability/ Neutrality
Definitions	Credibility shows the truth of data respondents' views and their interpretation.	Applicability offers the degree of application of the research findings in the exact nature of context, people, groups, and settings.	Dependability is the consistency of data over similar contexts. If the findings of one study are replicated in a similar population, condition, or context, the study findings are dependable (Koch, 2006)	Neutrality is the degree of fairness of results, which consists of the purity of original responses of the study participants and free from every kind of biases
Strategies for Improvement	1. Prolong Engagement at Sit	1. Theoretical, purposive sampling:	1. Overlap Methods:	1. Triangulation
	2. Persistent Observation	2. Collect thick descriptive data	2. Stepwise Replication	2.Parecacing Reflexivity
	3. Peer Debriefing:	3. Develop a thick description of the data	*3*. Establish an "Audit Trail"	
	4. Triangulation		4. The Audit process.	
	5. Collection of Referential Adequacy Material		5. Coding Record	
	6. Member Checks		6. Triangulation	
	7. Establishing structural Corroboration or Coherence		7. Expert opinion	

	8. Repeated Observation

3. Assurance of Trustworthiness in Qualitative Research

3.1 Strategies to Ensure Trustworthiness in Qualitative Research

Several strategies throughout the research process can ensure trustworthiness in qualitative research. Research process planning can use some strategy. These strategies can be applied in the data collection process, and others are in the data interpretation process. Every criterion of trustworthiness in qualitative research can use specific strategies. Some strategies, such as triangulation and reflexivity, are helpful for multiple criteria.

3.2 Strategies for Credibility Improvement

3.2.1. Prolong Engagement at Site

Prolonged engagements are one of the most critical strategies suggested by Lincoln & Guba (1985), cited Leininger (1985), to improve the Credibility of qualitative research. The qualitative researcher needs to spend more time with respondents and in context to identify and document themes, patterns, and values and develop trust (Riazi & Ghanbar, 2023; Eryilmaz, 2022; Enworo, 2023).

It will also be helpful for the researcher to recognise the participant's context, values, social norms, and level of understanding to control his own biases, perceptions, and participant biases. Understanding participant culture is also important to understand the real picture. Lincoln and Guba (1985) indicated that prolonged engagement is an important strategy to identify patterns, understand the perspective, and allow the researcher and respondent to familiarise themselves with the investigator. The researcher, Kielhofner (1982), is also in favour of long interaction and argues that this enhances research findings and helps understand hidden facts.

There is no rule regarding the engagement of time. It depends on the nature of the study, the researcher, and the context where the study is conducted. However, it is worth mentioning that over-involvement may disturb the study findings.

3.2.2. Persistent Observation

Persistent observation is another important strategy Lincoln Guba (1985) suggested, cited Leininger (1985), to ensure credibility in a qualitative study (Enworo, 2023). Continued observation of the phenomenon under numerous natural situations is necessary to explore reality. It is also important to understand the overall qualities of the strengths of the findings. Atypical characteristic needs more observation to explore and identify, which is needed to rigour the qualitative study (Riazi & Ghanbar, 2023). The researcher can identify and eliminate the irrelevant aspects by observing continually (Eisner, 1979). So, the researcher needs to spend adequate time on site and with participants to validate the characterisation. (Eryilmaz, 2022).

3.2.3. Peer Debriefing

Peer debriefing is also an important strategy for credibility. Debriefing about research is an important strategy given by Guba (1981) to assess and evaluate the overall process to understand the areas for improvement. On the one hand, debriefing with supervisors and colleagues helps the researcher understand the weaknesses and helps them control perceptions and biases. These sessions with collaboration will be beneficial to recognise other vital approaches that may be used in the research process. Guba (1981) indicated that sometimes, in the field, ongoing activities need timely redirection, and the debriefing process can identify the areas of improvement. (Eryilmaz, 2022).

3.2.4. Triangulation

Triangulation is one of the most common, popular, and important strategies to enhance the credibility and quality of research. Triangulation is when the researcher investigates multiple aspects and multiple understanding perspectives to conform to the complete investigation of the phenomenon (Atkinson & Delamont, 2008; Knafl & Breitmayer, 1989). Triangulation is when another assessment and cross-check are conducted to improve credibility. Triangulation is a method in which various sources, diverse perspectives, theories, many investigators, and various techniques are used to assess and cross-check the research plan, process, and interpretation (Denzin, 1978). The researcher triangulated the study through different methods, but four types were prevalent and effective, as given by Kneel and Breitmeyer in 1989. Triangulation of methods in which the compression of data collected through various tools, such as interviews,

observation, and focal group discussions, is the most common kind of triangulation. The triangulation of data sources is the second type. The investigator must triangulate the variety of data concerning time, space, experience, setting, and procedures (e.g., interactive observation and passive observation). The third kind of triangulation is theoretical triangulation. The observation and investigation of the phenomenon using different theoretical lenses or testing the phenomenon using different theoretical approaches to understand the phenomenon deeply is called theoretical triangulation. The fourth is the triangulation of investigators. The research study conducted by more than one researcher or group of researchers investigated the phenomenon to understand a different perspective of this kind of triangulation. Team members always have different experiences, approaches, points of view, and understanding from different angles, which will help understand the phenomenon deeply by sharing their opinions and purifying the findings and results.

3.2.5. Collection of Referential Adequacy Material

Thesis supportive activity, discussed by Guba (1981) to improve credibility. The supporting raw data about the study area include audio, videos, documents, etc. Collecting the research study topic will support the investigator in interpreting data and improving the study's credibility. For example, videotapes about the collaborative strategies used by the teacher while investigating the impacts of collaborative strategy on students' motivation will provide evidence about the variety and effectiveness of the strategy (Eryilmaz, 2022).

3.2.6. Member Checks

Member checks are also one of the most common and effective techniques discussed by Lincoln and Guba (1985). Member check is the process of sharing data in report form and collecting participant feedback (Rose & Johnson, 2020; Eryilmaz, 2022). Member check is a significant opportunity to test research findings, interpretations, and explanations linking culture (Davis & Lachlan, 2017). The participants will judge the data accuracy and the researcher’s interpretations through member checks (Riazi & Ghanbar, 2023).

The continued testing and assessment of research, data, process, analytical categories, interpretation, and conclusion by another expert informant are member-checking strategies to improve qualitative research credibility. This process can be adopted in the planning phase,

during the data collection process, after data collection, and at any time on the spot. This technique can be used by applying several styles, keeping in mind the needs of the study. Peer check is also alike. Reforming or altering study tools can ensure process credibility (Mays & Pope, 1995). Improving the effectiveness process after understanding with the help of interviews, observation, and other tools can also enhance it. Lastly, by reading the reports, interrelations, and discussions, it can also be improved by relating with theories and literature.

3.2.7. Establishing Structural Corroboration or Coherence

This is the strategy elaborated by Guba (1981) for the insurance of consistency of data and its interpretation. Internal coherence among all data within the study structure is necessary for credibility. The researcher must ensure that there is no internal contradiction or conflict. The contraction is possible, as different perspectives and data are collected from different sources. Still, the investigator needs to indicate these patients' disputes in the interpretation process, which will enhance credibility.

3.3 Strategies of Transferability Improvement

3.3.1. Theoretical, Purposive Sampling

Theoretical purposive sampling is a vital strategy given by Gaba (1981) to improve transferability. In this strategy, the panel of judges helps the investigator select the sample for the under-research phenomenon. In this type of sample (nominated sample), there must be one or two members of the family or support group that help the researcher in the sampling procedure (Field & Morse, 1985), which is not typical purposive sampling. Theoretical sampling is when the specialist collectively identifies the sample and envisions covering the maximum uncovered information. The importance and relevancy are the primary targets in this sampling. The data collected and interpreted by experts regarding study sampling is more authentic than individually selected sampling. This is effective in the improvement of trustworthiness in the qualitative study.

3.3.2. Collect Thick Descriptive Data

Thick descriptive data is another important strategy in which the investigator collected comprehensive contextual information to compare it with another context to ensure

transferability. Comparing the two contexts' characteristics will allow the assessors to understand the phenomenon in light of already researched phenomena of the same nature. The background information of respondents, context, setting, time, and space collected by the investigator informed others to assess the transferability of the research study. Lincoln and Guba (1986) stress that investigators' responsibility is to provide sufficient contextual information, which others can use to judge the transferability.

3.3.3. Develop Thick Description of Data

Another essential strategy given by Guba (1981) is this strategy; the researcher has to comprehensively describe the background of the study to provide the opportunity for readers to have a proper understanding of the phenomenon. The researcher must elaborate the contextual knowledge regarding the research study, considering another context, to allow others to judge and fit it in their contexts.

3.4 Strategies for the Dependability Improvement

3.4.1. Overlap Methods

Overlap methods are an impertinent strategy proposed by Guba (1981) to ensure the dependability or stability of a research study. Campbell, Schwartz, and Cherst (1966) consider the overlap method as a triangulation method in which different methods are used in the cycle. This overlap method is very important to overcome the shortages of one method. Using two or more methods in a cyclic position will cover the weaknesses of each other and provide comprehensive and real data. It is also important to notice that this strengthened stability if all the methods provide the same result (Guba, 1978). It is commonly understood that more than one data collection method offers more comprehensive information. The triangulation of these methods helps us understand a clear picture of the phenomenon.

3.4.2. Stepwise Replication

A thesis is an important strategy discussed by Guba (1981) for improving dependability. This is analogous to the “split-half" reliability of the test in quantitative research. Data is divided into two halves; two research groups work on the analysis process and compare the results. Communication between groups and team members is important to understand the nature of the

research study and share their perspectives about every research step. Lincoln and Guba (1985) stress the daily communication of teams and team members to cross-check and develop visions for further operation. They also recommended that criteria be developed before starting the process, and the communication must also be documented.

3.4.3. Establish an "Audit Trail"

An audit trail is the external auditing process suggested by Guba (1981). In this process, the external auditor reinvestigates the data collection, analysis, and interpretation process to understand the appropriateness of these processes. The auditor can analyse the documents and observe the processes, and the audit report must be documented. The auditor may have indicated the weaknesses in the data collection procedure, data analysing method, and data interoperation so that the researcher could overcome the shortages (Earnest, 2020; Eryilmaz, 2022).

3.4.4. The Audit Process

Guba (1981) expressed that the audit process should be authentic and regulated. For this purpose, there should be some criteria. The audit procedure must be evaluated by someone or a team to assess the degree of effectiveness, authenticity, and applicability of the process and appropriateness in light of pre-specified criteria.

3.4.5. Coding Record

Coding record is also an important strategy to improve the study's dependability. The researcher has to code the data in the data analysis process, adopt this technique, and then, after at least two weeks, analyse the data and compare the results. This process will decrease the bias of the researcher in the analysis process.

3.4.6. Triangulation

The triangulating process is also beneficial in the enhancement of credibility. By using triangulation, the researcher can compensate for the weaknesses of one data collection method with another data collection method. Krefting (1990) views that triangulating the methods can improve dependability. Three important aspects, data triangulation, method triangulation, and investigator triangulation, are indicated by researchers to improve trustworthiness (Denzin, 2015; Riazi & Ghanbar, 2023).

3.4.7. Expert Opinion

Expert opinion will be very helpful to improve the data collection tools, data collection process, analysis strategies, and interpretation of the research study. It will ultimately enhance the degree of credibility. The researcher, Krefting (1990) views that colleagues, peers, and methodological experts can help check the research plan and implementation to improve the study's credibility.

3.4.8. Repeated Observation

Repeated and continuous observation of sites, events, and subjects and recording the important points regarding the study can improve and enhance the degree of stability. Lincoln and Guba (1985) also considered continuous repeated observation as an important strategy for improving dependability.

3.5 Strategies to Improve the Conformability

3.5.1. Triangulation

Lincoln and Guba (1985) suggested triangulation as a vital strategy to improve conformability. It is one of the most central strategies for strengthening trustworthiness. It is helpful to improve credibility, transferability, and conformability (Earnest, 2020). The collection of a variety of perspective knowledge, using various data collection methods, and comparing results in the triangulation process are very helpful in improving conformability. (Eryilmaz, 2022). The researcher stressed that there must be at least two data collection methods for every research study to identify the real picture of the phenomenon by triangulation of the data. The other aspect of triangulation is understanding the phenomenon in light of different perspectives and theories. So, triangulation helps understand every aspect of the subject.

3.5.2. Practicing Reflexivity

Reflexivity is an important strategy, which indicates to the researcher regarding his influences on data. Reflexivity is the understanding that the researcher's values, background, knowledge, and experiences can affect the research findings (Earnest, 2020). The assessment of the researcher's influences on research results is important to understand and control in several ways. The expert opinion, member check, literature, and coding will be helpful strategies to prevent the researcher's biases and minimise subjectivity (Olmos-Vega et al., 2022)

Aamodt (1982) argued that qualitative research is reflexive because the researcher is a part of the research process instead of an observer. The results should reflect reality based on the data received from informants (Pratt, 2009). The researcher must adopt the research context. For that purpose, the researcher needs to reflect on his characteristics and evaluate how his characteristic influences or corrupt the data collection process and data analysis. Researchers suggested that "Filed journal" is one of the best techniques the investigators must maintain throughout the study process. The researcher has to describe three kinds of information about the study in the field journal. The description of the daily schedule, logistics, methodologies, and their relational, made by the researcher, are the two aspects. The third is a personal diary in which the researcher's thoughts, ideas, and feelings are reflected and generated by the researcher in response to the respondent's responses. There must be content about questions the researcher wants to discover and problems researchers face. By developing this research process, the researcher may understand his bias and preconceived assumptions. In light of these indications of biases, the researcher must change or modify the data collection process. This will ensure the conformability of the study.

4. Conclusion

Qualitative researcher data are as generalisable as quantitative data. Opting for systematic research design at the data collection stage, interpretation, and reporting of the results can resolve qualitative quality issues (Mays & Pope, 2000). As mentioned by Martin (2003)," We cannot say in advance how far we must go in our quest to determine the context that led to this move, but this indeterminacy is simply the minimal flexibility required to understand complexity." The trustworthiness of qualitative research relies on credibility, transferability, dependability, and neutrality. The researchers advocated trustworthiness in qualitative research by conducting research studies and developing models to ensure the generalizability of data. The research provided four important criteria of trustworthiness and explored essential strategies of every criterion to ensure trustworthiness. There are a number of strategies/techniques suggested by the researcher, especially Guba, to be adopted in a research study to ensure trustworthiness. Experts and researchers in the field highly accept the Guba model of the trustworthiness of qualitative data. Credibility is like internal validity in quantitative research and provides true data about the phenomenon. The strategies to ensure credibility are prolonged engagement at the site, persistent

observation, peer debriefing, triangulation, collection of referential adequacy material, member checks, and establishing structural corroboration or coherence. Transferability shows the degree of application of the research finding in other exact natures of context, people, groups, and settings. The primary technique to ensure applicability is theoretical purposive sampling, collecting thick descriptive data and developing a thick description. If the findings of one study are replicated in a similar population, condition, or context, the study findings are dependable. The important technique for consistency is overlaps methods, stepwise replication, establishing an audit trail, the audit process., coding record, triangulation, expert opinion, and repeated observation. Neutrality is the degree of fairness of results, which consists of the purity of original responses of the study participants' original responses and free from every kind of bias. The impertinent strategies to ensure neutrality are triangulation and prefacing reflexivity. These all are important to ensure trustworthiness in qualitative research.

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