

QUALITATIVE RESEARCH IN PHARMACY EDUCATION

A Review of Strategies for Enhancing Clarity and Reader Accessibility of Qualitative Research Results

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Objective. To characterize elements of the results section of qualitative research reports that make findings more accessible to readers.

Methods. Two analytical methods were used for this review. First, published reviews and textbooks written by experts outlining how to evaluate qualitative research were retrieved and reviewed to identify common elements that enhance clarity of the results section. In the second analysis, the authors analyzed the results sections of a subset of qualitative studies to identify, from a reader's point of view, aspects that enhanced and detracted from communication of the results.

Findings. Four elements improve accessibility of the results section for readers of qualitative research reports. Content, the first element, describes what information the reader should look for in the results section. Style of results, the second element, identifies wording choices that improve reader accessibility and understanding. Narrative flow, the third element, describes a results section that flows smoothly and logically. Structural cohesiveness, the final element, outlines effective organization of the results section.

Results. While authors take several approaches to the presentation of results in qualitative research reports, some strategies appear to be more common and effective than others. The efficient presentation of results can impact a reader's assessment of the quality and credibility of a study. Identified content and stylistic elements should be considered by authors hoping to make the results of their qualitative research more accessible and comprehensible to readers.

Keywords: qualitative research, medical writing, research papers

INTRODUCTION

Qualitative research has been a focus of inquiry used by social scientists since the inception of psychology as a discipline in the late 1800s, but its use in the biomedical sciences is relatively recent. The application of social science techniques to biomedical research was first described in the nursing literature in the 1960s,¹ but it was not until the 1980s that medical and nursing education specialists began reporting results of qualitative research,^{2,3} and guidelines for conducting, evaluating, and reporting qualitative research appeared in the nursing education literature.⁴⁻⁶ Over the next two decades, reports describing how to read and appraise qualitative research appeared in medical,⁷⁻¹⁷ nursing,¹⁸⁻²⁴ pharmacy,^{25,26} physical therapy,²⁷ nutrition,²⁸ social work,²⁹ medical chaplaincy,³⁰ and health care related journals.^{31,32}

Textbooks outlining qualitative research methods abound, including at least one focused on how to write qualitative research reports.³³ Standards for reporting qualitative research include the Consolidated Criteria for Reporting Qualitative Research (COREQ),³⁴ and the Standards for Reporting Qualitative Research (SRQR).³⁵ Author guidelines also outline critical elements of qualitative research reports.^{25,36}

Although these publications provide useful information regarding qualitative research design, data collection methods, data analysis, and methods to ensure quality and rigor, surprisingly little information outlines how qualitative research results should be reported. We initially set out to summarize information from published articles and textbooks about how to report results of qualitative research but found that evidence supporting and clarifying recommendations was sparse or limited to examples from the authors' own work. Missing was an objective appraisal of how to present results effectively. Thus, we decided to add to this body of existing literature our own analysis of effectively written results sections.

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The objective of this report was to identify effective techniques for reporting results, particularly those techniques that make results more accessible and understandable to readers.

METHODS

To achieve the report objective, we first searched available published literature for recommendations on reporting results. We searched PubMed and Embase using key words of “qualitative research” and (reading OR writing OR evaluating), restricting the results to review articles. For located articles with information about what should be in the results section, we used the “similar articles” function in PubMed and the “similar records” function in Embase to see if we could find additional papers. We also examined the reference lists of located papers for articles not identified through the initial searches. These journal articles,⁷⁻³⁴ standards,^{35,36} and guidelines,^{25,37} as well as all textbooks on qualitative research that we owned,³⁷⁻⁴⁴ were reviewed for content relating to writing or evaluating the results section of a qualitative report. Of the 27 journal articles, eight did not address the results or findings in any way, so only the remaining 19 were used in the data analysis. One of the standards³⁵ and both guidelines^{25,37} identified material that should be included in the results section of a research paper. Three textbooks contained information about writing a results section, one devoting over 14 pages of text to the subject.^{37,41,44} We employed an inductive approach to this content analysis,⁴⁵ identifying everything about writing or evaluating results sections within these publications. We reviewed these publications iteratively as themes began to emerge until patterns of themes and subthemes were clear across publications.

For the second phase of this review, we performed content analysis on the results sections of a group of published qualitative research reports. We chose a subset of studies about health care practitioner professional identity formation, as this is an inherently qualitative subject and an area of interest to us both. We used the search term “professional identity” along with the search term of a specific health care profession (eg, “nursing”) in PubMed and Embase. Because our objective was not to conduct an extensive literature review on professional identity formation per se, but instead to examine how the authors had written the results sections, we narrowed the data collected to a subset of more recently published studies to focus on current practices in reporting results. We gathered studies published in 2015 or later for the professions of dental practice (dental hygiene and dentistry), occupational therapy, pharmacy, physical therapy, and social work. Because this topic has been more widely

explored in medicine and nursing, we limited retrieved studies from the medical and nursing literature to 10 studies for each profession, selecting from those published in or after 2017. We excluded studies in languages other than English, those unavailable to us in full text, and meta-syntheses. We ultimately also decided to exclude studies of multiple health professions because the studies measured interprofessional education, rather than professional identity formation. Thus, the examined studies were collected in a manner analogous to purposeful sampling.⁴⁶

The inclusion criteria resulted in a sample of 40 studies to analyze for this project: two in dentistry/dental hygiene,^{47,48} 10 in medicine,⁴⁹⁻⁵⁸ 10 in nursing,⁵⁹⁻⁶⁸ four in occupational therapy,⁶⁹⁻⁷² eight in pharmacy,⁷³⁻⁸⁰ two in physical therapy,^{81,82} and four in social work.⁸³⁻⁸⁶ The authors were typically a mix of clinicians (eg, MD), clinician-scientists (eg, RN-PhD), and/or social scientists (eg, PhD in education). The studies took place in a variety of countries in North and South America, Europe and Africa, and Asia-Pacific. Most studies examined participants’ verbally expressed perceptions of professional identity formation, but a few featured content analysis of written material generated by students or practitioners or examined content of published articles for a specific aspect of professional identity. A few studies also used mixed methods, with the quantitative portion most often a questionnaire, scale, or survey. For these studies, analysis focused on the presentation of results for the qualitative aspects of the study. Most studies used some form of thematic analysis, such as grounded theory, phenomenologic, or constructivist approaches.

For our analysis of these data, we followed an abductive approach,⁴⁵ where we hypothesized that themes identified in the analysis of published literature on writing qualitative research results would also be apparent in the qualitative research reports, but that new elements of writing effective results sections might also emerge from the qualitative research report analysis. The first author, whose formal training is primarily as a clinician, selected, organized, and summarized the studies included in the formal analysis, assessing the most frequently used methods for data presentation and narrative development. This analysis was done over time, with constant comparison of the publications to see what patterns emerged. The second author, whose formal training is as an education scientist, examined the results of each selected study over a short time period (1.5 hours) to identify elements of the results that made it easy or more difficult to ascertain and comprehend the findings. This fast overview was done to simulate the reader experience of scanning a results section for comprehension. All studies

were new to the second author upon the first read, with the exception of two of the pharmacy studies, which he had previously read in the past year. The second author talked out loud about what he was seeing while the first author took notes. The first author then transcribed the notes to identify elements of success and detractor for each study. The second author reviewed the transcribed notes for accuracy, comparing them to a second fast read of the study results. The second author had not discussed with the first author the results of her content analysis at the time this fast read was done. Both authors then reviewed the data and conferred repeatedly until consensus was reached on the final themes from this analysis.

FINDINGS

Two themes emerged during the first analysis, which was of published literature outlining how to read or evaluate qualitative research. The first theme was content of results and concerned reader knowledge of what information to look for in the results section. The second theme was style of results and concerned choice of wording that would improve reader accessibility and understanding. Two themes also arose from the second analysis, which was of qualitative studies exploring the professional identity formation of health care professionals. The first of these, which was the third theme overall, was narrative flow, which concerned creation of a results section that flowed smoothly and logically. The fourth and final theme was structural cohesiveness, which described elements of effective organization of the results section.

The first theme, content that readers should look for in the results of a qualitative research report, included themes, illustrative quotes, and contextual interpretations. Most authors identified themes as the outcome of data analysis. Wu and colleagues noted that it was important for authors to avoid “under-elaboration, where themes are too few and not clearly defined. The opposite problem, over-elaboration, pertains to too many analytic distinctions that could be collapsed under a higher level of abstraction.”¹⁶ In our analysis of data from publications about professional identity formation, we found one publication where many themes were identified and little elaboration was provided, and another where very few themes were identified, yet analyses were several pages long. Authors of results sections should avoid these extremes in order to maintain clarity.

All reviews and textbooks named quotes as an important part of the results section. Quotes form the data backbone for each theme/subtheme or point. Anderson noted that, “sufficient data should be presented to allow the reader to clearly see the relationship between the data

and the interpretation of the data.”²⁵ All publications about professional identity formation that we examined contained quotes in the results section, but a few of the reports did not successfully connect the quotes to the themes they were meant to illustrate. In long quotes it was sometimes difficult to determine what part of the quote the authors wished to highlight. Quotes should arise naturally from the theme descriptions and contain only the essential words and phrases that best illustrate the point.

An unexpected finding was the lack of consensus around what constituted interpretation. Few of the reviews or textbooks defined what interpretation specifically entailed. Tavakol and Sandars stated that, “in interpreting qualitative findings, the core idea is what lessons have been learned from codes, categories, [and] themes which have been grounded in the participants’ perspective.”¹⁴ Cypress proposed useful questions for authors to answer: “What surprising information did you not expect to find? What information is conceptually interesting or unusual to participants and audience? What are the dominant interpretations and what are alternative notions?”²⁴ Fossey and colleagues added that the interpretation “should also place the findings in context,”⁷ signifying that one of the goals of interpretation is to tell the reader what should be done with the information, theme, theory, or explanation provided. The importance of interpretation became apparent to us while reading two reviews on qualitative research techniques, where the authors repeatedly offered a paragraph of quotations or ideas proposed by previous authors, but made no attempt to summarize or reconcile the quotes or ideas, ie, no “bottom line” was provided for the reader. Therefore, the content of the findings or results section should include identification of the themes or concepts arising from the data analysis, illustration of the themes or concepts with data (quotes), and interpretative statements that summarize how the reader can use, apply, or make meaning of the information.

The interpretation of data in a study is inextricably tied to the qualitative researcher’s viewpoints and filters. Sandolewski and Leeman explain that “qualitative findings are themselves composed of researchers’ interpretations of the interview, observation, and/or other data generated in a study.”²⁰ Subjectivity in data analysis may be challenging to accept for readers who are used to quantitative research, but it is an integral part of qualitative research. Either in the methods, results/findings, or discussion, it is important for authors to make transparent their viewpoints and how those viewpoints influence the interpretive process, a concept called *reflexivity*. Cresswell elaborates, “I think about reflexivity as having two parts. The researcher first talks about his or her

experiences with the phenomenon being explored. This involves relaying past experiences through work, schooling, family dynamics, and so forth. The second part is to discuss how these past experiences shape the researcher's interpretation of the phenomenon."⁴¹ A final point on content is made by Castleberry and Nolan, who implore authors of qualitative research reports to "answer your research questions."²⁶ Readers must clearly be able to identify the authors' answers to their stated research questions.

The second theme identified in the published literature was wording choices that could increase reader understanding and accessibility, with accessibility meaning that the reader can easily comprehend, appreciate, and use the information from the report. As Cote and Turgeon stated, "the researcher must present, in a way that is understandable to the reader, the results that he/she feels are most relevant, theoretically and practically, to his/her research question."⁸ Methods of making results more understandable to a reader include use of first-person active voice; simplicity and precision in word choice; and length, placement, and style of quotes.

Because an emphasis is placed on objectivity when reporting the findings of quantitative research, it is traditional to write in the third-person voice, and readers will expect this voice to be used in qualitative research reports as well. Gilgun thinks that "qualitative researchers who write in distanced, third-person voices and who give short shrift to informants believe that this kind of writing is scientific and that lively, first-person writing is not."²⁹ Writing in the first-person plural voice (ie, "we") sets a conversational tone that draws the reader in like a well-told story, making it easier for the reader to follow and digest the results, increasing accessibility and transferability.

Another important consideration is simplicity and precision in word choice. A reader unfamiliar with qualitative research reports will not understand results explained using highly technical terminology or jargon. If a technical term is used, it should be preceded or followed by an explanation in easily understandable words. As Belgrave notes, "use technical language, but do not use it alone."³² Sandelowski and Leeman also speak to this, although not completely following their own advice: "Qualitative research findings are difficult to apprehend when they are not rendered parsimoniously [Cutcliffe & Harder, 2009]: when the desires for self-expression and artfulness trump expression that is comprehensible to others, and when simplified writing is mistaken for oversimplification of the complexity of the experiences, events, and the like targeted for study."²⁰ Authors wanting to communicate clearly to their readers should use

straightforward nontechnical words when possible and explain technical terms when they are used.

Several authors of the published literature we examined spoke about the quote presentation style in qualitative research reports. Anderson²⁵ noted that "the researcher should select quotes that are poignant and/or most representative of the research findings. Including large portions of an interview in a research paper is not necessary and often tedious for the reader. The setting and speakers should be established in the text at the end of the quote."²⁵ Korstjens and Moser spoke of the "thick description," where authors describe the setting and situation of the person being quoted to provide context for the reader.¹⁷ We found that each of these elements, setting the context for the quote, using the part of the selected quote that best communicates the point, and identifying the participant who made the quote with some kind of code, improved our ability to comprehend points in the most well-written of the qualitative research reports and contributed to narrative flow.

Narrative flow as a theme emerged from analysis of the results sections of the qualitative research reports. We found that the flow of a narrative contributed to or hindered the ease with which we understood the points made by authors. When we could not easily grasp the flow of results we were tempted to give up and move on to the next paper. Elements that contributed to narrative flow were a pattern to the narration that was repeated throughout the results section and a logical progression of points introduced by the authors.

The easiest papers to read in the professional identity formation data set were those that exhibited a clear pattern to the narrative presentation. The authors began by stating and explaining their point, such as a subtheme. They would preface the quote by providing the context for choice of the quote or setting of the speaker. The quote would then appear embedded in the text (for short quotes) or inset as a block quote. After the quote, the authors would provide their commentary or interpretation of the quote. In the most well-crafted papers, the authors then provided a transition statement to the next point, prior to ending the paragraph. This pattern of making a point, introducing the quote, presenting the quote, commenting on the quote, and ending with a transition sentence or two leading into the next point was repeated again and again, setting up a comfortable pattern for the reader. Chenail calls this the "Tarzan effect," with the quotes being the "vines" and the author acting as Tarzan, connecting the quotes as he swings from one point to the next.³¹ This pattern can be seen in a study report by Seo and Kim about the lives of Korean nurse practitioners living and working in the United States.⁶⁸ The authors started by explaining

how Korean nurse practitioners exhibited a life dedicated to helping their patients, which was the theme of the paragraph. Just prior to the quote, the authors set the context for the quote by identifying the participant who was quoted and summarizing what that participant did. After the quote, the authors identified how another practitioner exemplified a dedicated life. The authors concluded by identifying active participation and supportive behavior, characteristics that are closely tied to the next theme they presented, which was diligence. The authors repeated this pattern throughout the results section.

Some of the papers displayed a logical flow to theme presentation. We observed authors who chose to present their themes based in part on how frequently themes were observed, as was done in a study exploring how medical faculty attending a US-based program on humanistic practice sustain their humanistic practices:

Five themes were identified by consensus of the investigators. The first theme was mentioned by far most frequently; remaining themes were ranked by their perceived connectivity to the first theme: 1. identification with humanistic values: It is who I am; 2. providing the same care that I or my family would want; 3. connection to patients; 4. passing on my values through role modeling; and 5. being present in the moment. These were often linked and reinforced one another.⁵⁰

Other authors used a timeline approach, as exhibited by a study investigating how British oral and maxillofacial surgery (OMFS) trainees gained a sense of identity moving through their separate medical and dental training programs:

Analysis showed that professional identity develops during 4 key stages in OMFS early years training. It begins during the primary degree, continues after graduation, is consolidated during the second degree, and continues to develop after dual undergraduate qualification.⁴⁷

Each of these different methods for approaching narrative flow is effective, showing that there is no single best approach to the flow of data presentation. In both illustrations, the authors introduced a logical progression of ideas early in the results section, which provided context and aided in structural cohesiveness.

In our analysis of the results sections of qualitative research reports, we found three structural elements that, when present, helped tie the results section together and, when absent, made navigation more difficult. These three helpful elements were: beginning the results section with

presentation of the themes identified in the study, using subheadings that restated the themes, and ensuring there was adjacency between points made and supporting quotes. A fourth structural element employed by many of the authors of the qualitative research reports was judicious use of tables to convey data and figures to convey processes or theories.

We found that presentation of the themes at the beginning of the results section let us as readers know what to anticipate. Reading through the professional identity papers, we found ourselves looking for and expecting to see the themes listed in the first paragraph of the results section, as was done in a study of how group work by British pharmacy students influenced their professional identity:

The thematic analysis of the interview data gave rise to four main themes describing aspects of students' collaborative learning. These were that group working: promotes friendly interactions; aids learning about the subject and the profession; opens the mind and shows different opinions and ways of thinking; and enables learning about other people.⁷⁵

Although most of the reports identified the themes early on, many of the authors chose to list characteristics of the participants in the first paragraph of the results section, as was done in this study of how the professional identity of pharmacy interns in Australia is formed during their preregistration year of practice-based learning:

Fifteen interns (men=5, women=10) were interviewed. Interviews lasted between 40 and 75 min. Six of the interns were hospital based and nine were community based. Analysis of the interview data yielded three themes relating to the interns' transition to practice and its influence on their professional identity formation. These were (1) curricular influences on identity; (2) encountering the realities of practice; and (3) understanding what it means to be a pharmacist.⁸⁰

Some reports provided extensive data about participants in the first paragraph or first several paragraphs of the results section, making it harder to find the theme overview paragraph.

We observed it was common for reports to have results sectioned by headers. Using theme descriptors as headers aided our navigation of the results section, particularly when theme descriptors presented early in the results section matched theme headers in the subsequent text. Comprehension of the results section was slowed for us when there was misalignment between stated themes

and headers, no identification of themes before headers occurred, or when some headers were themes and others were not.

Proximity of quote to point being made was another element of structural cohesion. Quotes were easiest for us to comprehend when they were preceded by theme presentation and followed by interpretation. Quotes embedded within the paragraph were easier to differentiate from the text when they were italicized rather than bound with quotation marks. Block quotes inset from the rest of the text were the easiest to read and recognize. Some of the studies placed quotes only in a table that was separated from the interpretation of the point, requiring more work on the part of the reader to make the connection between point and quote. However, a table may be necessary to communicate results when the publisher has a word or page limit for submitted manuscripts. We recommend that if authors must place quotes in a table, they facilitate proximity by also identifying within the table the theme that applies to the quote as well as a brief commentary or description to provide context, elaboration, or interpretation.

The use of tables and figures generally facilitated our comprehension of the main themes of the studies. Most often, columns in a table started with themes and sub-themes on the left and illustrative quotes in the right-most column. Authors of a study examining professional identity formation in Iranian social workers reversed that order, with quotes on the left collapsing to codes, then subthemes, then themes in the right-most column, and we thought this arrangement was very effective.⁸⁵ Authors of some studies also created a figure to illustrate a developed model. This approach was most frequently seen with grounded theory studies. We found that the figures often did not aid in our understanding of the material being presented. One study had so many figures and tables that the flow of the text was interrupted and the authors' main points were difficult to follow.⁵⁰ Tables and figures should thus be used judiciously.

Two additional points emerged during data analysis. First, the results or findings section should be clearly labeled as such. In two reports, the results were not clearly labeled, making it difficult for us to find and comprehend those results. Second, most authors provided some form of participant coding for quotes to facilitate reader understanding of the quote source. It was helpful when authors provided a key for how to interpret the participant codes. For example, in a study of Dutch community pharmacists transitioning to hospital pharmacy, the authors explained:

To each quote, we added an indicator for each clinical pharmacist (CP1-CP8) and followed this by denoting

the data source (Interview 1 [I1], Interview 2 [I2], competency report [CR], or Peer Feedback Session [PFS] report).⁷⁷

In addition to clarifying the quote source, participant keys sometimes provided a little context for the quote, and reassured us that quotes were drawn from a variety of participants or sources, rather than all being from a single source.

DISCUSSION

The findings of this review reveal that while there are multiple ways of presenting results in a qualitative research report, some approaches particularly enhance effective communication. Studies that included the expected content presented in a style that facilitated comprehension, made use of a well-developed narrative, and exhibited structural cohesiveness proved easiest for us to read and understand. Content of a results section that readers should expect are individual themes and their supportive quotes, and interpretation by the authors, who also explain the perspective with which they viewed the data. A writing style characterized by use of the first-person plural voice, employing easy-to-understand language, and quotes that are easily distinguishable from their surrounding text appear to aid in reader comprehension. Characteristics of well-developed narrative that readers can look for are use of a pattern or rhythm in presentation of the results and a logical progression of ideas. Finally, the following will enhance the structural cohesiveness of the results: presenting themes in the first paragraph of the results section; using headers worded to match the themes presented in the first paragraph; maintaining proximity between themes, quotes, and author interpretation; using tables judiciously; and labeling the results section and participant quotes.

While tables can be used to efficiently communicate results in quantitative research, use of tables interrupts the narrative flow of qualitative research. Thus, the length of the results section in the qualitative studies we reviewed appeared longer and more text-heavy than quantitative studies we have read. Despite the longer length, we found that structurally cohesive narratives written in first-person plural voice and peppered with observations made by the authors were easy and enjoyable to read. Making the results section easy to read should be a consideration for authors, as the reader is not only comprehending the information presented but also using readability as a quality criterion for the credibility of the research.⁸⁷ We encountered this issue more than once during our analysis when the readability and

accessibility of study results affected our perceptions of the usefulness of the study.

Another factor in readers' assessment of the quality and credibility of the results of qualitative research reports involves an understanding of the researcher as an active participant in the research process through the perspective the researcher brings to the study.⁸⁸ Our backgrounds affected our responses to the papers we read during this project. For example, the first author, who teaches pharmacy students how to read quantitative research, was comfortable with the results section starting with a description of the participant numbers and baseline characteristics because that is how results from quantitative research are presented. The second author, who is an education scientist, felt that starting a results section with participant demographics and quantitative information detracted from initial engagement with the findings of the study, opining that this type of information is better suited for the methods section. Our discussion of this difference in opinion led us to recognize how our individual perspectives were shaped by our respective training and research backgrounds. Interestingly, we found that the practice of starting off the results section with a description of participant numbers and demographics was more common in studies using a mixed methods approach or those where most of the authors had a clinician or clinical scientist background.

This report has limitations. We tried to locate as many published articles about reading, writing, or evaluating qualitative research in health professions education as possible, but we undoubtedly missed some and so may have missed additional useful elements of a qualitative research report results section. In the professional identity formation studies, we examined only recently published literature; older studies may have had a different focus for presenting results. We did not categorize or seek out studies based on specific qualitative methodologies or traditions, so we cannot make any conclusions about techniques and strategies for reporting results from specific methodological approaches. Including a quantitative analysis by calculating coder agreement would have allowed us to test robustness of theme descriptions, but was not aligned with this report's purpose. Presenting the results in tabular form would have shortened the results section, but would have separated the themes and quotes from their interpretation, making it harder for the reader to connect those elements.

Despite these limitations, we were able to identify some elements of results sections that researchers or readers new to qualitative research may find helpful. Including an embedded qualitative analysis in this review was a technique that helped us apply and illustrate suggestions from published literature and textbooks as well

as identify other effective techniques for presenting results. In fact, we found this analysis so useful that it changed the way we wrote the results section of this manuscript compared to how we have written that of previous qualitative research papers. We hope that our observations will be equally helpful to writers and readers of qualitative research reports in setting expectations for clarity and accessibility of study results.

SUMMARY

Effective techniques that can produce clear and comprehensible results sections of qualitative research reports include a clear pattern for presentation of each theme, supporting quotes, and subsequent interpretation of the quotes in a logical flow, from the start to the end of the results section. Stylistic elements that can aid in reader comprehension of the results section are use of first-person plural voice, simplicity and precision in word choice, themes named at the beginning of the results section and subsequent appearance of the same themes as headers in the body of the results. Judicious use of tables can enhance communication of results, keeping in mind that adjacency or close proximity of themes, quotes, and interpretations enhance reader accessibility of results.

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