New Trends in Qualitative Research

VOLUME 22 | Nº 3

DOI:
https://doi.org/10.36367/ntqr.22.3.2026.e1391

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THE GIOIA DATA STRUCTURE AS METHODOLOGICAL ARTEFACT IN NURSING RESEARCH

ABSTRACT

Grounded theory (GT) remains one of the most widely used methodological approaches in qualitative health and nursing research, valued for its capacity to support inductive theory generation when exploring complex social phenomena and professional processes. Despite its popularity, GT research is frequently criticised for limited analytic transparency: researchers often provide detailed procedural accounts of coding, constant comparison, and memoing, yet struggle to demonstrate how conceptual and theoretical claims were derived from descriptive empirical data. This concern carries particular weight in health and nursing contexts, where findings are routinely expected to inform professional practice, education, and policy. This paper addresses the question of how analytic transparency in GT can be strengthened through engagement with the Gioia methodology, and specifically through its data structure, a layered diagram distinguishing participants' own language, the researcher's interpretive labelling, and theoretical abstraction. The paper outlines GT's transparency challenge and the epistemological fit between the Gioia methodology and constructivist grounded theory, before presenting a reflexive, worked illustration drawn from a previously published study of overseas nurses' professional and social adaptation. The data structure and its underlying analytic process are described in detail, followed by a critical discussion of both the benefits and the risks of using such artefacts, including the risk of implying a false linearity that oversimplifies what is, in practice, a recursive and messier analytic process. The paper concludes that the Gioia data structure, used as a complement to rather than a substitute for detailed narrative reporting, can strengthen methodological rigour, ethical accountability, and pedagogical clarity for novice qualitative researchers in health and nursing contexts.

Keywords
Grounded theory; Gioia methodology; Analytic transparency; Nursing research; Qualitative methods.

Submission date: February,2026
Review date: July, 2026
Publication date: September,2026

1. Introduction

This paper addresses a specific methodological question: how can analytic transparency in grounded theory (GT) be strengthened — particularly within health and nursing research — through the deliberate use of the Gioia 'data structure' as a methodological artefact rather than a purely presentational device? Drawing reflexively on a previously conducted qualitative study, it is argued that the data structure, when treated as an object of methodological reflection in its own right, can make the interpretive movement from data to theory more visible, auditable, and pedagogically useful for novice researchers.

Since its original formulation, Grounded Theory (GT) methodology has offered an interesting research approach using inductive logic, by which theory can be generated through sustained engagement with empirical data (Glaser & Strauss, 1965). This makes it particularly well suited for use in healthcare contexts, as these are generally characterised by issues of complexity, uncertainty, and constant human interaction (Noble & Mitchell, 2016; Charmaz & Thornberg, 2021). Through the years GT has been widely used in health and nursing research (Connor et al., 2025; Mediani, 2017) with the aim at producing results that move beyond description, towards theorising complex social phenomena and professional processes (Quinn et al., 2020; Urone et al., 2024). Some examples relate to studies exploring issues with nurse turnover (Mayes & Cochran, 2023), the use of knowledge in practice (Renolen & Hjälmhult, 2015), integration of spirituality in care (LeBlanc-Kwaw et al., 2021), professional socialisation (Lunn et al., 2025), and professional identity (Bullock et al., 2024).

Despite its widespread uptake, at times such methodology often attracts critique in relation to the lack of analytic transparency (Connor et al., 2025). Although GT researchers usually provide detailed accounts of the coding process, constant comparison, and memoing and reflexivity within the research process, they can still struggle to clearly demonstrate how they moved from participants' accounts to the development of higher-level conceptual and theoretical claims (Connor et al., 2025; Charmaz & Thornberg, 2021). This communication as to how the interpretive reasoning that underpins theory development is performed often remains under described, and as a result leaves readers or examiners uncertain as to how certain analytic decisions were made. Unfortunately, despite all the good intentions and strict procedural techniques carried out throughout the research process, this form of analytic opacity (at times referred to as the *"black box"* of qualitative analysis) can undermine perceptions of rigor and trustworthiness in qualitative research (Gioia et al., 2013).

Such concerns about transparency might carry additional weight when it comes to assessing health and nursing research whereby the findings are often used to inform professional practice, education, and policy formulation. It is a well-known fact that within these applied disciplines, research findings are generally evaluated through the application of evidence-based paradigms that prioritise methodological accountability and auditability (Lincoln & Guba, 2017; Almaze et al., 2023).

Henceforth, researchers are at times faced with dilemmas as to how to preserve the interpretive depth while at the same time make their analytic reasoning sufficiently visible and communicable to their audience. Such challenges are perhaps more common amongst researchers that are new to grounded theory, who encounter such tensions early in their research training and are still developing a working familiarity with approaches such as the Gioia methodology.

This paper presents a reflexive and methodological examination of how elements of the Gioia methodology can be integrated within GT or possibly other forms of qualitative research to enhance analytic transparency. As an illustrative case, it draws on a previous study involving overseas nurses working in a small island state, arguing that the 'data structure' (an integral component of the Gioia approach) needs to be understood not merely as a presentational device, but also appreciated as a methodological artefact that captures and communicates the interpretive logic applied during the analysis. In doing so, this paper contributes to ongoing debates concerning rigor and trustworthiness in qualitative research (Gioia et al., 2013; Lincoln & Guba, 2017) and offers some practical insight for new researchers navigating such challenges in presenting their respective findings.

2. Making the Analysis Visible

Developed by Glaser and Strauss (1967), Grounded Theory (GT) puts particular emphasis on repetitive engagement with the data that has been collected. At its core, the methodology oriented towards explaining how phenomena unfolded rather than to simply describing them (Charmaz & Thornberg, 2021).

As a general approach, one of its main distinctive features relates to the fact that much of its analytic work occurs through a series of interpretive practices inherent within the research process itself. These include the constant use of memo writing, comparative coding, diagramming, and theoretical integration which together can serve to assist the researchers in their exploring, testing and refining of meaning (Glaser, 1978; Charmaz, 2014; Rizzo et al., 2024). However, while GT textbooks and publications generally offer strong guidance with regards on how to handle and analyse the data (Birks & Mills, 2015); it provides less insight as to how one can demonstrate how analytic decisions progressed across the stages of analysis (Charmaz & Thornberg, 2021). Such matters are often communicated retrospectively, and this is usually done through a narrative explanation after presenting the final conceptual model. Therefore, at times, theory may appear simply as a final product, providing minimal or limited visibility of the analytic reasoning that produced it.

Unfortunately, such a gap becomes very salient when used in applied disciplines such as nursing and other healthcare sectors. This is extremely important due to the fact that in such contexts, research findings are increasingly expected to inform and influence professional practice, education, and policy. It also places a greater emphasis on methodological accountability and communicability (Lincoln & Guba, 2017; Almaze et al., 2023).

While as already outlined, GT offers substantial analytic rigour, the effort through which this is achieved can remain difficult for readers to apprehend, particularly those less familiar or critical of qualitative methodologies. All this suggests that the matter at stake is not whether GT is rigorous enough, but rather as to how its rigor is communicated. Addressing such a challenge necessitates using approaches that preserve the depth of interpretation whilst also providing a means to show structured ways of representing such progression.

It is at this level that a case can be made for advocating the use of simple diagrams as methodological artefacts to depict the process of analysis. Such artefacts are not intended to replace a detailed narrative explanation of what happened, but rather to provide readers with a visible means of seeing how empirical material was progressively transformed into conceptual understanding.

3. Proposal - The Gioia Methodology for Analytical Representation

This paper draws primarily on constructivist grounded theory (Charmaz, 2014), given its explicit emphasis on the researcher's active role in constructing meaning from data — a stance that aligns closely with how the Gioia methodology treats analytic representation as an interpretive act rather than a neutral report of what is 'found' in the data. The argument developed here is not intended to apply uniformly across all GT traditions, however: classic (Glaserian) GT's more discovery-oriented stance, in which categories are understood to emerge from the data with minimal researcher shaping, sits less comfortably with the Gioia methodology's explicit acknowledgement of researcher interpretation. Where this paper speaks to GT practice more broadly — inductive category development, constant comparison, theoretical abstraction — those elements are shared widely enough across variants that the argument holds; where it depends on the researcher's interpretive visibility specifically, it is most directly compatible with constructivist and other interpretivist strands of GT.

The methodological gap this paper responds to is specific: health and nursing GT studies frequently report rigorous procedures (coding, memoing, constant comparison) in narrative form but rarely provide a single visual artefact that lets a reader trace a specific analytic decision from raw account to final category. Compared with other representational strategies used in qualitative health research such as coding trees, thematic maps, or software-generated hierarchy charts (e.g., NVivo); the Gioia data structure's distinguishing contribution is its explicit three-tier separation of participant language, researcher interpretation, and theoretical abstraction, which makes the location of interpretive judgement visible rather than folding it into a single undifferentiated diagram.

The Gioia methodology was originally developed within the field of organisational and management research intended to offer a structured approach to doing qualitative analysis focusing on clearly presenting the progression from empirical material to theoretical abstraction (Gioia et al., 2013).

Its main epistemological assumptions closely align with those associated with a constructivist and interpretive grounded theory approach through inductive theorising, and iterative comparison (Charmaz, 2014; Magnani & Gioia, 2023). It emphasises the fact that the researcher has to place extraordinary attention to participant's particular meaning of the phenomenon under study by treating them as 'knowledgeable agents' (Gioia et al., 2013). For such reasons, the Gioia method has increasingly been recognised as compatible with general GT logic of conducting analysis, even when employed outside its original disciplinary context (Langley & Abdallah, 2011; Gehman et al., 2018). However, although the Gioia method shares important epistemological similarities with constructivist and interpretive grounded theory approaches (Charmaz, 2014; Keane, 2025), its use in health and nursing research remains relatively underexplored.

At the core of this approach is an emphasis on clear differentiation between the participant's voices and that of the researcher. This is particularly emphasised through an illustrative representation called 'data structure' (a diagram showing the researcher's progression from empirical data to conceptual theoretical concepts). This artefact explicitly distinguishes between participant-centric (First-order) concepts, researcher-centric (Second-order) themes, and developed theoretical (Aggregate) dimensions (Gioia et al., 2013; Magnani & Gioia, 2023). First-order concepts remain particularly faithful and closely represent participants' language and meanings from the interview data. Usually these take the form of snippets of direct quotes from selected interviews. Second-order themes start to reflect the researcher's interpretive engagement with the data informed through the practice of constant comparison, memoing, and theoretical sensitivity. At the stage of Aggregate dimensions, the researcher's integration of second-order into higher-level conceptual explanations occurs. This is performed by considering emergent processes or patterns. This layered diagram depicts the analytical movement from description to abstraction (central to grounded theory), whilst offering a more explicit representational form (Corley & Gioia, 2004; Gioia et al., 2013) of what was happening behind the scenes.

Rather than functioning merely as a general summary of the findings, the 'data structure' is used to provide a transparent representation of how analytic interpretations were constructed within the research process. In agreement with the developers of this approach (Gioia et al., 2013), making this analytic progression visible through artefacts or diagrams like the 'data structure' provides a direct response to ongoing concerns about how inductive qualitative analysis can be communicated better in published research (Pratt et al., 2020; Gehman et al., 2018).

For those new to the Gioia methodology, it is important to note that the approach does not try to impose a rigid analytic template or prescribe theoretical outcomes. Moreover, it also does not clearly define what constitutes a category, theme, or theory and this is totally left at the researcher's discretion and imagination. In practice, it offers a structured yet flexible framework that supports inductive reasoning and makes the interpretive steps explicit.

Seeing this from a constructivist GT perspective, the method emphasizes operationalising reflexivity by acknowledging the researcher's role in meaning-making rather than obscuring it (Charmaz, 2014; Olmos-Vega et al., 2023; Wilson, 2022).

With this in mind, integrating ideas from the Gioia methodology within grounded theory and other forms of qualitative research can potentially complement and add value to analytical transparency, rather than being seen as a methodological departure. If given its due importance, the 'data structure' can serve as an exemplary methodological artefact that supports analytic transparency without diminishing interpretive depth. This becomes increasingly relevant in research contexts where the expectations of methodological clarity and accountability are subject to tighter scrutiny (Johnson et al., 2020).

4. Reflexive Illustration: The Data Structure in Practice

The illustrative material discussed in this section derives from a previously completed qualitative study involving 25 interviews with overseas nurses working in a small island context, conducted solely by the author and published separately (Schembri, 2024). The underlying analytic structure — its first-order concepts, second-order themes, and aggregate dimensions — was developed during that original study through an iterative process of approximately six rounds of refinement. What is presented here for the first time is the graphical rendering of that structure as Figure 1, together with the reflexive account of how it was built; the analysis itself is not being redone or reinterpreted for the present article. This section does not re-present that study's substantive empirical findings, which are reported in full elsewhere. The data structure and accompanying excerpts, drawn directly from the original dataset, are used strictly as a worked example to support the present paper's methodological argument about analytic transparency. The object of interest here is the artefact and the reasoning it displays, not the substantive conclusions about nurses' professional and social adaptation.

The study involved in-depth interviews with overseas nurses exploring their professional and social adaptation within the healthcare system. The analysis followed principles of constant comparison, memo writing, and iterative category development (Charmaz, 2014; Glaser, 1978). Early stages of analysis generated a large number of codes closely grounded in participants' language, capturing experiences such as bureaucratic frustration, social isolation, communication challenges, and professional uncertainty. At this stage, analytic activity closely resembled conventional GT initial coding, prioritising attentiveness to participants' meanings.

4.1 Researcher Positioning

My engagement with grounded theory predates this study, developed through earlier doctoral training; the Gioia methodology specifically was introduced to me later, on a dissertation supervisor's suggestion, and adopted for the original nurses' study discussed here.

I write from a professional background as a nurse, having spent several years in clinical and management roles before moving into research, and health and nursing research constitutes my main area of scholarly work rather than a one-off application. Since the original study, I have applied the Gioia methodology in subsequent research, which has informed the reflections on its strengths and limitations offered in this paper. This positioning is offered not as a caveat but as part of the reflexive transparency the paper itself argues for: my clinical background shaped both my access to participants and my interpretation of their accounts, a point returned to in the critical discussion below.

4.2 The Data Structure as an Analytic Representation

First-order concepts were identified through manual, line-by-line coding of the interview transcripts, incorporating in vivo codes drawn from participants' own words where these captured meaning most directly. In line with the Gioia methodology, second-order themes were developed by sorting, reducing, and aggregating the first-order codes into increasingly abstract categories, allowing patterns across the dataset to be identified beyond the language of any single participant. Aggregate dimensions were then constructed by grouping the second-order themes further, once first and second-order analysis was complete, to form a superordinate framework capable of organising the findings as a whole.

This analysis was conducted by a single researcher (the author); no co-coding or inter-rater comparison was undertaken, and alternative groupings at the second-order or aggregate-dimension stage were not formally tested against one another. Analytic decisions were instead developed iteratively, through discussion with doctoral supervisors and fellow academics at various stages of the process (a form of peer debriefing), which served as an informal but consistent check on the reasoning behind each stage of abstraction. The data structure went through approximately six iterations before reaching its final form, refined as familiarity with the dataset deepened and as feedback from these discussions was incorporated.

Figure 1 presents an excerpt of the ‘data structure’ developed during the analytic process of the study, showing three of the six aggregate dimensions in full analytic detail. This excerpt is reproduced here as a central methodological artefact rather than a supplementary illustration; the remaining three aggregate dimensions follow the same three-tier analytic logic and are omitted only for reasons of space and figure legibility, not because they are less illustrative of the process. In keeping with the Gioia methodology, the ‘data structure’ visually represents the analytic progression from first-order concepts to second-order themes and aggregate dimensions (Gioia et al., 2013).

The left-hand column displays first-order concepts expressed in participants’ own terms, such as references to prolonged registration processes with the nursing council, feeling lonely, and communication barriers within professional and social settings.

At this analytic level, my intention is to remain as close as possible to the participants lived experiences and resist the urge to go for premature abstraction. This aligns with GT's emphasis on preserving participant meaning throughout the early stages of analysis (Charmaz & Thornberg, 2021).

The middle column represents second-order themes reflecting my own interpretive engagement with the first-order concepts. Through applying the principles of constant comparison and analytic memoing, I clustered a number of selected participant expressions and interpreted these into themes (such as legislative struggles, feelings of loneliness, and language barriers). Behind this stage of analysis there is a shift to my own voice (moving from that of the participants) as the researcher. Rather than concealing this movement, the 'data structure' makes it explicit, thereby applying reflexivity by acknowledging my personal role and interpretation in trying to make sense of what the participants are conveying (Olmos-Vega et al., 2023).

For further clarification, when looking across a number of interview transcripts, having left family behind generated two related but analytically distinct responses. Statements expressing a sense of incompleteness or directly missing family members (e.g., feeling that 'everything is fine, but that doesn't complete us', or wondering 'why am I here?') were conceptualised as longing for family, whereas statements expressing responsibility, self-reproach, or an inability to fulfil a caregiving role towards family left behind were conceptualised separately as guilty feelings. This distinction was not a neutral or automatic categorisation, but an analytic decision grounded in comparative analysis and also somehow informed by my own contextual knowledge of the local migration and employment regulations for non-EU nationals.

The final column at the right-hand of the 'data structure' diagram represents the so called 'aggregate dimensions'. These concepts integrate second-order themes into higher-level conceptual theoretical explanations. In this study, six (6) aggregate dimensions capturing the processes shaping nurses' adaptation and settlement experiences were developed in total; Figure 1 displays three of these six in full, selected as a representative excerpt of the complete structure. Eventually these formed the basis of the grounded theory model presented as the final output of analysis.

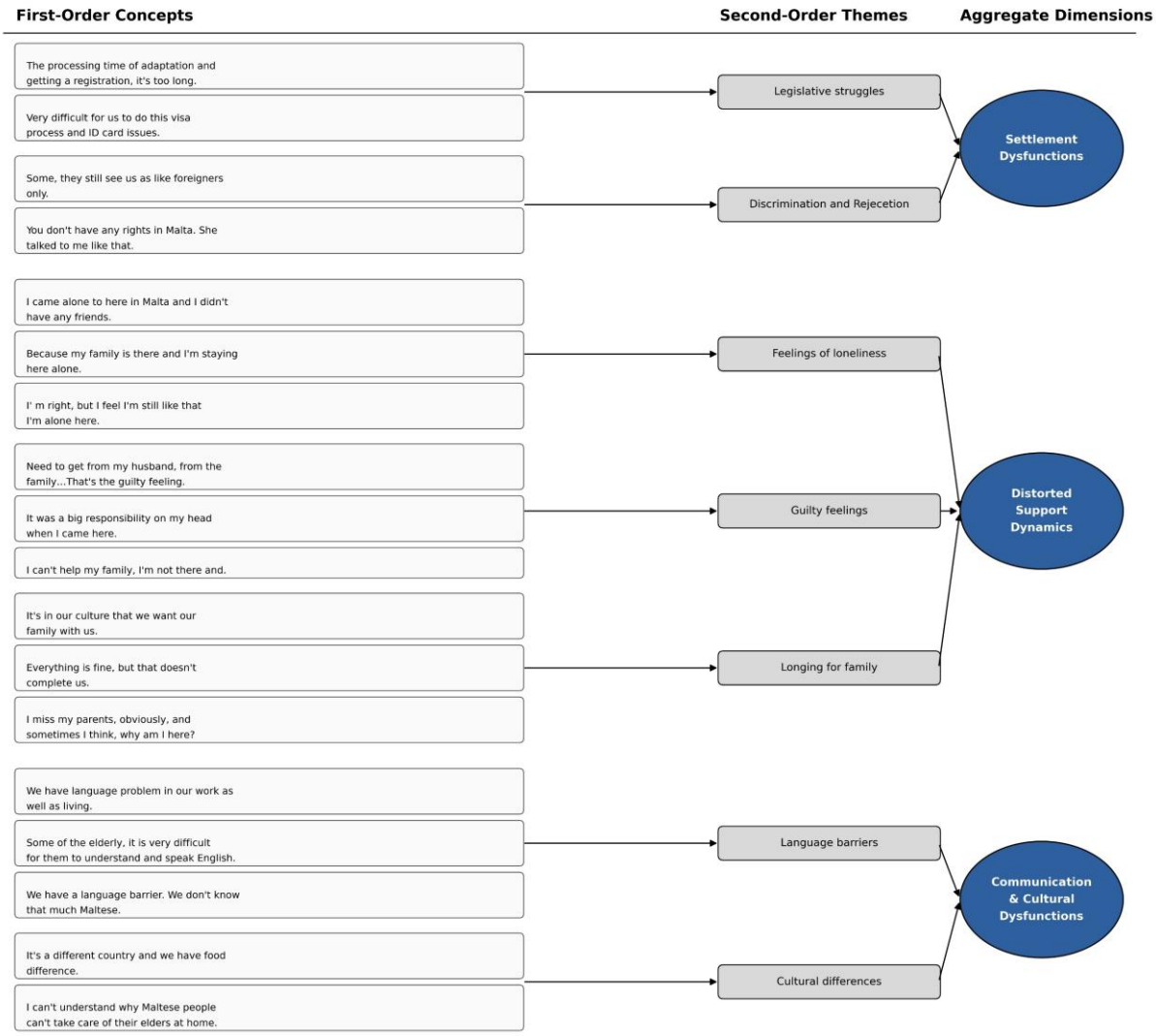

Figure 1: Emergent 'data structure' from mentioned study (excerpt: three of six aggregate dimensions shown)

Read as a whole, Figure 1 makes three distinct interpretive movements visible: the progression from participants' own words (first-order concepts) to the researcher's analytic labelling (second-order themes) to theoretical abstraction (aggregate dimensions). This visibility is what supports trustworthiness in the sense discussed by Lincoln and Guba (2017): a reader unfamiliar with the dataset can trace whether an aggregate dimension is defensibly connected to the language participants actually used, rather than having to accept the researcher's final claims on trust alone. Each column of the figure therefore does specific transparency work — the first-order column anchors the analysis in participants' accounts, the second-order column exposes the researcher's interpretive labelling as a discrete, inspectable step, and the aggregate-dimension column shows how these interpretations were synthesised into theory.

5. Critical Discussion - The Data Structure as Scaffold for Abstraction and Reflexivity

For novice grounded theory researchers, one of the most challenging aspects of analysis is understanding how abstraction occurs without becoming detached from data. The 'data structure' functions as a scaffold for this movement. By mapping analytic progression visually, it demonstrates that abstraction is neither intuitive nor abrupt, but the result of disciplined, iterative interpretation (Gioia et al., 2013; Pratt et al., 2020).

Reading the 'data structure' from left to right shows that aggregate dimensions do not emerge directly from individual quotations. Instead, they are constructed through successive interpretive steps that remain anchored in participants' accounts. In this sense, the 'data structure' counters the misconception that theory "emerges" spontaneously from data, highlighting instead the active role of the researcher in theory construction (Charmaz, 2014).

In my own analytic practice, constructing the 'data structure' served as a reflexive checkpoint. It required ongoing assessment of whether *second-order themes* were adequately grounded in *first-order concepts*, and whether *aggregate dimensions* genuinely integrated rather than merely grouped their constituent themes. This process disciplined analytic reasoning while simultaneously making it communicable.

Beyond supporting analysis, the 'data structure' also acted as a reflexive mirror. My professional familiarity with the healthcare system inevitably shaped my interpretations. By making analytic reasoning explicit, the Gioia framework exposed these interpretive influences rather than obscuring them, thereby supporting reflexive accountability (Finlay, 2002; Olmos-Vega et al., 2023).

5.1 Limits and Risks of the Data Structure

The clarity the data structure offers is not without cost. Its neat, left-to-right layout risks implying a linearity that the analytic process itself did not have: in practice, movement between first-order concepts, second-order themes, and aggregate dimensions was recursive, with later insights prompting a return to re-code earlier transcripts across the roughly six iterations the structure went through. A reader encountering only the finished diagram may reasonably underestimate this iteration and the messiness it involved.

There is a further risk that the diagram's apparent tidiness substitutes for, rather than complements, a genuine narrative account of the analysis — a structure can be populated retrospectively to look defensible even where the underlying analytic work was less rigorous. Because the format has fixed conventions (three tiers, a small number of aggregate dimensions), there is also a risk of researchers, especially novices, forcing their data into this shape rather than allowing the shape to follow from the data.

A further consideration specific to this illustration is that the analysis was conducted by a single researcher rather than through formal co-coding. Within a constructivist grounded theory approach, this is not treated as a departure from a required standard of inter-coder agreement, since the analysis does not assume a single, coder-independent 'correct' categorisation for multiple researchers to converge on; rigour here instead rests on the traceability and defensibility of the researcher's interpretive choices. This was supported through constant comparison across transcripts, sustained memo-writing, and successive revisions of the structure across approximately six iterations, alongside discussions with doctoral supervisors and fellow academics that allowed interpretations to be questioned, tested, and substantiated. My own clinical background as a nurse, discussed in the Researcher Positioning above, likely shaped which participant accounts I found analytically significant and how I labelled them — a form of interpretive influence the data structure's tidy appearance can obscure rather than reveal, unless it is made explicit, as it is here.

For these reasons, the data structure is best understood as a complement to, not a substitute for, detailed narrative description of the analytic process, and its use should be accompanied by explicit acknowledgement of the iteration and interpretive shaping it cannot, by itself, fully display.

5.2 Methodological Contributions – Pedagogical Value for Novice Qualitative Researchers

The use of illustrative diagrams showing the evolvement of data analysis and reasoning (such as the ‘data structure’) is argued to hold strong potential value for novice GT and other qualitative researchers. Such artefacts can provide an explicit representation in attempt to make analytic reasoning visible, discussable and teachable (Gehman et al., 2018). Furthermore, as a pedagogical tool, the use of such techniques can enable supervisors and students to specify analytic moves, question interpretations, and consider alternatives. Such practices can support analytic confidence and at the same time reinforce reflexivity. It is important to keep in mind that the use of such techniques does not standardise interpretation or prescribe analytic outcomes, but they provide a space within which interpretive creativity can be exercised responsibly. These pedagogical benefits are presented as reasonable, conceptually grounded possibilities suggested by the illustration developed in this paper, rather than as claims that have been empirically evaluated through use with novice researchers in practice; testing their actual pedagogical effect remains a task for future research.

6. Final Considerations

This paper's contribution is to reposition the Gioia data structure (most often discussed within management and organisation studies) as a methodological artefact relevant specifically to health and nursing GT research, where analytic-transparency concerns carry particular weight given the field's applied, practice-facing nature.

Specifically, the innovation proposed here is not a new version of the Gioia data structure itself — its three-tier format remains as originally developed by Gioia et al. (2013) — but a health and nursing-specific framework for its reflexive use: pairing the diagram with an explicit account of researcher positioning, a critical discussion of its limits, and worked guidance on how GT researchers in this field might use it to render their own analytic reasoning visible. This distinguishes the present contribution from the established Gioia methodology, which the paper adapts and extends rather than replaces. Existing debates on transparency in qualitative research have often addressed reporting standards and procedural description in narrative form; this paper adds to that discussion a concrete, adoptable visual device, together with a worked account on how to build one, use it reflexively, and critically evaluate its limits.

By positioning the Gioia methodology alongside traditional grounded theory approaches rather than as an alternative to it, this paper illustrates how incorporating illustrations (as methodological artefacts such as the 'data structure') when reporting findings can address analytical transparency and its representational challenges.

Rather than proposing a one size fits all solution, this paper suggests that methodological innovation can strengthen credibility, communicability, and trustworthiness of qualitative research. In doing so, it contributes to the ongoing discussions about rigour and reflexivity in qualitative inquiry.

Returning to the question posed at the outset — how analytic transparency in GT can be strengthened through engagement with the Gioia methodology — this paper has argued that the data structure, treated deliberately as a methodological artefact rather than a summary illustration, offers one workable answer. Methodologically, it gives readers a traceable route from participants' words to theoretical claims, making a researcher's interpretive decisions visible rather than implicit. Ethically, it supports accountability in exactly this way — by exposing, rather than concealing, the researcher's role in shaping what counts as a finding. Pedagogically, it gives novice GT researchers, particularly in health and nursing contexts, a concrete device for learning to recognise and defend their own analytic decisions.

These benefits are conditional, not automatic. As discussed in Section 5.1, the data structure carries real risks of implying false linearity, of allowing tidy retrospective reconstruction to stand in for rigorous analysis, and of obscuring the interpretive influence of a researcher's own background and positioning. Used alongside, rather than instead of, thorough narrative reporting of the analytic process, and accompanied by explicit reflexive acknowledgement of its limits, the Gioia data structure can meaningfully strengthen transparency, rigour, and trustworthiness in health and nursing grounded theory research.

Ethical Approval: This paper is a methodological study and does not report new empirical research. The illustrative data structure discussed in Section 4 derives from a previous, separately conducted and published study involving human participants, for which local approval for data collection was obtained from the Ethics Committee of the Malta College of Arts, Science and Technology (approval code: I003_2021, July 2021). No new data collection was undertaken for the present manuscript.

Informed Consent: Participants in the original study provided informed consent covering the academic dissemination and publication of findings arising from their data. Although the original consent did not use the specific term 'methodological illustration,' the present use falls within the scope of that consent: the material is drawn from already-published, fully anonymised data, no participant is identifiable, and no new empirical claims are being made about participants — the data structure is used solely to illustrate an analytic procedure already reported in the original publication.

Declaration of Conflicts of Interest: The author declares that there are no conflicts of interest regarding the research, authorship, and/or publication of this article. The material has not been published, in whole or in part, elsewhere and is not currently under consideration for publication in any other journal. The author was personally and actively involved in the work that led to this article and assumes responsibility for its content.

Use of Artificial Intelligence (AI): Artificial Intelligence tools were used to support the preparation of this article, namely for language editing, textual reformulation, and preliminary organisation of information (e.g., ChatGPT). The use of the tool was exclusively instrumental and did not replace critical analysis, data interpretation, methodological decisions, or the scientific responsibility of the author, who fully assumes authorship and the integrity of the content presented.

Funding: The author declares that no financial support for the conduct of this research, authorship, and/or publication of the article was received.

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