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Delivering Hard Truths: A Conceptual Mind Genomics Framework for Empathetic Communication in Palliative Care

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Abstract

Effective communication is a fundamental component of high-quality palliative care, particularly during serious illness conversations involving prognosis, goals of care, and future decision-making. Although established communication frameworks provide evidence-based guidance for conducting these discussions, they are primarily intended to support clinical practice rather than to investigate how individuals respond to different combinations of communication messages. This paper proposes a conceptual Mind Genomics framework for empathetic communication in palliative care by translating key communication principles into a structured four-dimensional communication architecture. The proposed framework comprises four story questions addressing the introduction of difficult clinical news, responses to patients' emotions, discussions regarding future care, and support for subsequent decision-making, together with sixteen communication elements compatible with the standard Mind Genomics methodology. The paper further illustrates how the framework could be implemented in a future Mind Genomics study through experimentally designed consultation vignettes, respondent evaluation, and communication mindset identification. Rather than proposing a new clinical communication guideline, this conceptual framework is intended to complement existing evidence-based approaches by providing a theoretical foundation for future research exploring individual variation in communication preferences. If evaluated through future empirical investigations, the proposed framework may contribute to the development of more personalized communication strategies in palliative care.

Keywords: Palliative care; Mind Genomics; Empathetic communication; Serious illness communication; Communication mindsets; Personalized communication.

Introduction

Palliative care is a patient- and family-centred approach that seeks to improve the quality of life of individuals facing serious or life-limiting illnesses through the prevention and relief of suffering. According to the World Health Organization (WHO), it improves quality of life by addressing physical, psychological, social, and spiritual needs through the early identification, comprehensive assessment, and management of pain and other distressing problems, is applicable early in the course of illness alongside disease-directed therapies, uses a multidisciplinary team approach to support patients and their families, and may reduce unnecessary hospital admissions and healthcare utilization through early integration.[1] Beyond symptom management, effective communication is widely recognized as a cornerstone of high-quality palliative care because it enables healthcare professionals to understand patients' values, goals, preferences, and concerns while facilitating information exchange, empathy, trust, and shared decision-making. Communication becomes particularly important throughout serious illness, when patients and families must navigate emotionally challenging conversations regarding prognosis, treatment options, goals of care, and end-of-life decisions.[2,3]

Delivering difficult clinical information remains one of the most demanding responsibilities in palliative care. Serious illness conversations require clinicians to communicate difficult medical information with honesty, empathy, emotional support, and shared

decision-making while responding to patients' individual needs.[4] Ineffective communication can undermine patients' understanding, trust, and participation in decision-making, whereas compassionate, honest, and patient-centred communication strengthens therapeutic relationships and supports informed decision-making.[2,3] Patients and families consistently value communication that is clear, empathetic, respectful of their readiness to receive information, and responsive to their changing concerns throughout the illness trajectory.[2,5]

Despite increasing recognition of its importance, effective communication in serious illness remains challenging in everyday clinical practice. Qualitative evidence suggests that conversations about palliative care are frequently hindered by fear and discomfort surrounding discussions of serious illness and death, misconceptions regarding the purpose of palliative care, insufficient communication preparedness among healthcare professionals, conversations that occur too late in the disease trajectory, and cultural or language barriers that complicate meaningful dialogue.[6] These findings highlight that communication challenges arise not only from the complexity of serious illness itself but also from consumer-, provider-, and system-level factors, emphasizing the need for communication approaches that are both evidence-based and sufficiently flexible to accommodate diverse patient preferences and clinical contexts.

To support clinicians in conducting these complex conversations, several evidence-based communication frameworks have been developed. The SPIKES protocol provides a structured six-step approach for delivering difficult news by emphasizing preparation, assessment of the patient's understanding and information preferences, clear communication of medical information, empathic responses to emotions, and collaborative planning for subsequent care.[7] The Serious Illness Conversation Guide further encourages discussions centred on patients' goals, values, priorities, and preferences for future care, promoting conversations that extend beyond the communication of medical facts.[8] Similarly, the updated American Society of Clinical Oncology (ASCO) Patient–Clinician Communication Guideline recommends communication practices that foster rapport, shared decision-making, discussions of prognosis and goals of care, involvement of patients' support networks, and continuous communication throughout the cancer care continuum.[9] Despite these important advances, communication during serious illness remains inherently individualized. Patients differ in the amount of information they wish to receive, the manner in which they prefer difficult news to be communicated, the degree of emotional support they seek, and the extent to which they wish family members to participate in decision-making. Furthermore, communication preferences frequently evolve throughout the illness trajectory as patients' clinical circumstances, priorities, and emotional readiness change. These observations suggest that effective communication should not rely solely on standardized approaches but should also acknowledge meaningful differences in how individuals perceive and respond to communication.[2,10]

Although existing communication frameworks provide valuable guidance for conducting serious illness conversations, they are primarily designed to support clinical communication rather than to experimentally investigate how different groups of patients respond to different combinations of communication messages. Understanding these individual differences is essential for developing more personalized communication strategies and creates an opportunity to consider complementary approaches that focus on patterns of responses to combinations of communication messages rather than isolated statements.

In this context, Mind Genomics, described as an emerging science of the everyday, provides a complementary experimental framework for investigating how individuals interpret systematically varied combinations of communication messages rather than isolated statements.[11,12] Mind Genomics presents respondents with realistic combinations of communication elements (messages), deconstructs their responses through experimental design and regression modelling, and identifies distinct communication mindsets by examining patterns of responses across individuals.[11,13] Rather than assuming that a single communication strategy is equally effective for everyone, the approach seeks to reveal how different groups of people think about a particular topic by identifying meaningful differences in their responses to combinations of messages.[13,14]

Recent applications have demonstrated the versatility of Mind Genomics across diverse healthcare communication contexts, including patient–doctor interactions, childhood obesity communication, adolescent hospital experiences, asthma communication, and public health messaging.[11,12,13,15] Collectively, these studies illustrate the potential of the methodology to uncover communication mindsets that may not be apparent using conventional survey approaches and to generate evidence that can inform more targeted communication strategies.

Building on these principles, the present paper proposes a conceptual Mind Genomics framework for empathetic communication in palliative care through the development of a structured four-dimensional communication architecture. Rather than prescribing a single optimal communication strategy, this framework is intended to provide a conceptual foundation for future Rule Developing Experiments (RDEs) designed to explore communication mindsets in palliative care and to support the eventual development of more personalized approaches to serious illness communication.[13,15]

2. Why Mind Genomics for Palliative Communication?

Communication in palliative care extends beyond the transmission of clinical information. It requires an understanding of how patients interpret messages related to prognosis, hope, uncertainty, symptom management, personal values, and future care planning. Although evidence-based communication frameworks provide valuable guidance for conducting serious illness conversations, they are primarily intended to support effective clinical communication rather than to experimentally investigate how different patients respond to different patterns of communication messages. Consequently, important individual differences in communication preferences may remain insufficiently understood.

Mind Genomics offers a complementary perspective by treating everyday experiences and communication as experimentally measurable phenomena.[16] Rather than relying solely on questionnaires or isolated statements, the approach deconstructs a topic into meaningful communication elements, systematically combines these elements into realistic vignettes using an experimental design, and asks respondents to evaluate the complete communication scenarios. Statistical modelling is then used to estimate the independent contribution of each communication element to the overall response, thereby revealing the drivers of perception and decision-making.[16,17]

A distinguishing feature of Mind Genomics is its emphasis on identifying mindset groups of individuals who respond similarly to specific combinations of messages rather than being classified solely according to demographic or clinical characteristics.[12] This inductive approach seeks to discover naturally occurring patterns

in how people think about a particular topic, recognizing that different individuals may value different aspects of the same experience. More recent developments have further expanded the methodology through the integration of AI-assisted Idea Coach, systematic generation of communication elements, and the continued use of experimentally designed vignettes to explore patterns of response and identify communication mindsets.[17]

The flexibility of Mind Genomics has been demonstrated across a wide range of healthcare communication contexts, including patient–doctor interactions, childhood obesity communication, asthma messaging, adolescent hospital experiences, and public health communication, where the methodology has been used to identify distinct communication mindsets and explore how different groups respond to alternative communication strategies.[11-15]

From a conceptual perspective, palliative care represents an appropriate setting for the application of Mind Genomics because patients frequently differ in how they wish to receive information, the level of emotional support they prefer, the degree of family involvement they desire, and the balance they seek between realism and hope. These preferences often evolve throughout the illness trajectory and may not be fully captured through generalized communication recommendations alone. A methodology specifically designed to explore how different combinations of communication messages are perceived by different groups of individuals may therefore provide valuable insights for the future development of more individualized communication strategies.

Accordingly, the present paper proposes a conceptual Mind Genomics framework for empathetic communication in palliative care through the development of a structured four-dimensional communication architecture. Rather than reporting the findings of a completed Mind Genomics experiment, this paper provides a conceptual foundation for future Rule Developing Experiments (RDEs) that may identify communication mindsets and contribute to the design of more personalized approaches to serious illness communication.[13,15,16]

3. Conceptual Framework

The conceptual framework proposed in this paper is based on the premise that communication in palliative care may be viewed as a sequence of interconnected interactions rather than as a single communication event or an isolated clinical behaviour. During serious illness conversations, physicians often need to communicate difficult information, respond to patients' emotional reactions, discuss future care, and support subsequent decision-making. Instead of considering these communication tasks independently, the present framework organizes them into a structured communication architecture that may serve as the conceptual basis for future Mind Genomics investigations. This perspective is consistent with the Mind Genomics approach, which seeks to understand responses to combinations of communication messages presented within realistic everyday situations rather than to individual messages considered in isolation.[16,17]

Within the proposed framework, the communication process is organized around four story questions, each representing a distinct communication lens that could contribute to an empathetic palliative care consultation. For the purposes of this conceptual model, the story questions were arranged to broadly reflect a possible progression of communication during a serious illness consultation. The first communication lens focuses on introducing difficult clinical news, the second addresses responses to the patient's emotions, the third considers discussions about future care, and the fourth focuses on supporting the patient's subsequent decisions. Although these communication lenses are presented in a logical sequence, they are not intended to represent rigid or universally applicable stages of every palliative care consultation. Rather, they provide a structured narrative that may facilitate the development of realistic communication scenarios for future Mind Genomics studies.

Each story question contains four alternative communication elements, resulting in the standard Mind Genomics 4 × 4 conceptual framework comprising sixteen communication elements. Each element was formulated to express a single communication idea using concise, patient-centred language. The elements were intentionally designed to remain conceptually distinct while being compatible with elements from the remaining story questions. Consequently, the framework is intended to support the future construction of consultation scenarios in which different communication messages could be experimentally combined while preserving clinical coherence.

Importantly, the proposed framework does not assume that one communication message is inherently superior to another. Instead, all communication elements represent approaches that are generally consistent with the principles of empathetic, patient-centred palliative care communication. The conceptual premise underlying the framework is that patients may differ in their responses to alternative combinations of clinically appropriate communication messages. Accordingly, the framework is intended to provide a structured foundation for future Rule Developing Experiments (RDEs) that could explore whether distinct communication response patterns, or communication mindsets, emerge when patients evaluate different combinations of communication elements.

The proposed communication architecture therefore represents a conceptual translation of palliative care communication into a format that is compatible with the standard Mind Genomics methodology. By organizing communication into four story questions and sixteen independent communication elements, the framework provides a conceptual foundation for the future development of experimentally designed consultation vignettes while maintaining a coherent clinical narrative. The process used to develop the proposed communication matrix, including the formulation of the story questions and communication elements, is described in the following section.

4. Development of the Proposed Story Questions and Communication Elements

To translate the conceptual framework described in the preceding section into a format compatible with the standard Mind Genomics methodology, the proposed framework was organized around four story questions (silos) and sixteen communication elements. Consistent with the Mind Genomics approach, the story questions were intended to represent complementary aspects of communication that may arise during serious illness conversations, while the communication elements provide alternative communication messages that could be incorporated into future experimentally designed vignettes.[16,17]

The development of the proposed story questions was informed by the literature reviewed in the Introduction. Collectively, these publications highlight several recurring principles of effective palliative care communication, including clear and compassionate communication of serious clinical information, responsiveness to patients' emotional needs, discussions regarding future care

and ongoing support, and communication that encourages shared decision-making while respecting patients' values and preferences. Rather than adapting any single communication framework or guideline, these recurring principles were synthesized to inform the conceptual development of story questions that could be organized within the standard Mind Genomics framework.

To facilitate this development process, the Idea Coach, an artificial intelligence-assisted design tool integrated within the BimiLeap platform (BimiLeap; www.bimileap.com), was used to generate candidate story questions using the communication principles identified from the literature as prompts. The generated story questions served as an initial conceptual resource and were subsequently reviewed, refined, and reorganized by the authors to ensure consistency with the objectives of the present paper, alignment with the supporting literature, and coherence with the proposed communication journey described in the conceptual framework. Particular attention was given to ensuring that the story questions represented distinct yet complementary communication lenses suitable for future Mind Genomics investigations.

The resulting four story questions address communication that may occur throughout a serious illness consultation: (A) how difficult clinical news may be introduced, (B) how physicians may respond to patients' emotional reactions, (C) how future care may be discussed following the delivery of serious news, and (D) how patients may be supported when considering subsequent decisions. Together, these story questions provide the conceptual structure upon which the proposed framework is based.

Following selection of the story questions, the Idea Coach was again used to generate candidate communication elements for each question. These candidate elements subsequently underwent further review and refinement by the authors. During this process, the elements were revised to improve conceptual clarity, minimize overlap between communication messages, maintain concise patient-centred wording, and ensure consistency with the communication principles identified from the literature. Four communication elements were selected for each story question, resulting in the standard Mind Genomics framework comprising sixteen communication elements (Table 1).

Each communication element was formulated to express a single communication idea as a brief stand-alone statement. The elements were intended to remain conceptually independent while being suitable for future recombination with communication elements from the remaining story questions during experimental vignette construction. Because the present article presents a conceptual framework rather than findings from an empirical Mind Genomics investigation, the proposed story questions and communication elements should be regarded as a theoretical foundation for future Rule Developing Experiments (RDEs), where their performance and communication effects could be evaluated using respondent-generated data.

Table 1. Proposed Story Questions (silos) and Communication Elements

Story Questions (Silos)	Communication Elements
Question A. How should the physician introduce difficult clinical news?	A1. The physician explains the diagnosis using clear and simple language. A2. The physician begins by acknowledging that the news may be emotionally difficult. A3. The physician delivers the diagnosis honestly while avoiding unnecessary medical jargon A4. The physician presents the diagnosis directly without delaying the conversation.
Question B. How should the physician respond to the patient's emotions?	B1. The physician reassures the patient that they will continue to receive care. B2. The physician allows the patient time to express emotions and ask questions. B3. The physician emphasizes that the patient's values and preferences are important. B4. The physician acknowledges the uncertainty and emotional burden of the situation.
Question C. How should the physician frame the future after delivering the news?	C1. The physician focuses on maintaining comfort and quality of life. C2. The physician explains that relief of pain and distress remains a priority. C3. The physician explains that meaningful goals can still be achieved despite the illness. C4. The physician explains that care will continue even when cure is no longer possible.
Question D. How should the physician support the patient's next decisions?	D1. The physician encourages shared decision-making with the patient. D2. The physician invites family members to participate if the patient wishes. D3. The physician offers referral for psychological or counseling support. D4. The physician arranges a follow-up discussion before major decisions are made.

5. Illustrative Future Mind Genomics Implementation

The conceptual framework presented in this paper is intended to illustrate how empathetic communication in palliative care could be investigated using the standard Mind Genomics methodology in a future Rule Developing Experiment (RDE). One possible implementation could be undertaken using the BimiLeap platform (BimiLeap; www.bimileap.com), a web-based platform developed for the design, administration, and analysis of Mind Genomics studies. Although the present paper does not report an empirical investigation, the proposed workflow illustrates how the communication framework described in the preceding sections might be translated into a future experimental study. The overall conceptual workflow is illustrated in Figure 1.

In a future Mind Genomics investigation, the four story questions and sixteen communication elements presented in Table 1 could be implemented using the BimiLeap platform to generate experimentally designed consultation vignettes. Following the standard Mind Genomics methodology, the platform would automatically recombine communication elements drawn from different story questions according to an experimental design, thereby producing multiple consultation scenarios.

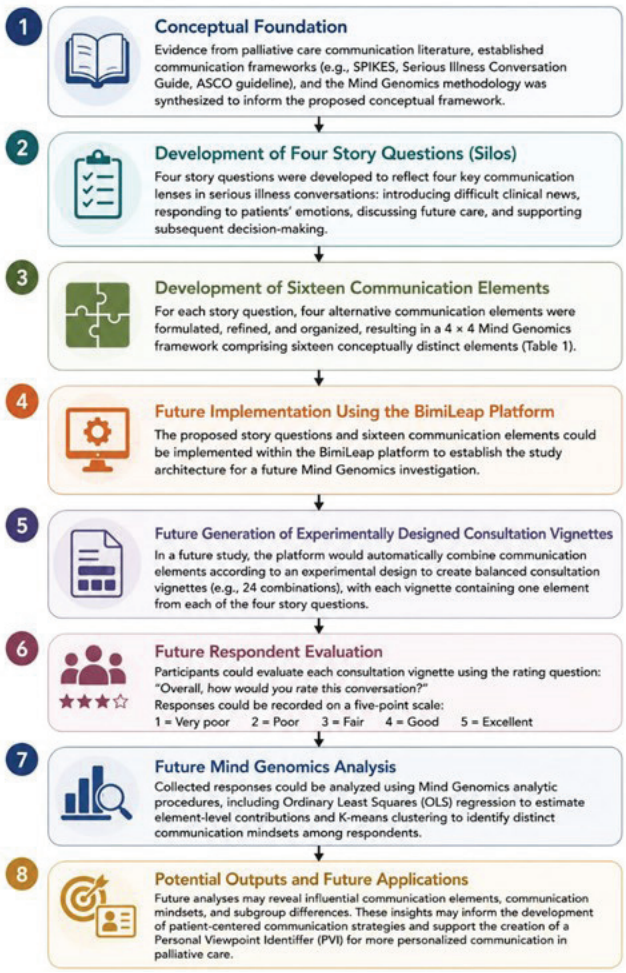

Figure 1. Proposed conceptual workflow for the future implementation of the proposed palliative care communication framework using the Mind Genomics methodology.

Rather than evaluating individual communication messages in isolation, respondents would evaluate combinations of communication elements presented as brief consultation vignettes, thereby more closely reflecting the multidimensional nature of real physician–patient communication (Figure 2).

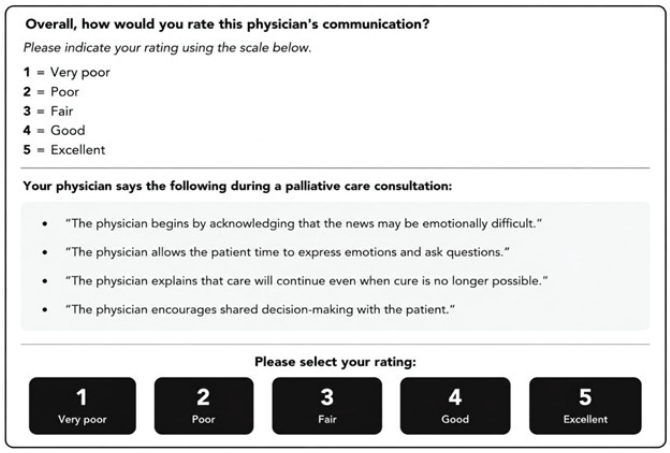

Figure 2. Illustrative example of a Mind Genomics experimental vignette

A future empirical investigation could invite respondents to evaluate each consultation vignette using a rating question aligned with the objectives of the study. For example, respondents might be asked:

Overall, how would you rate this physician's communication?

Responses could be recorded using the standard five-point Mind Genomics response scale:

1 = Very poor

2 = Poor

3 = Fair

4 = Good

5 = Excellent

Alternative rating questions could also be considered depending on the specific objectives and target population of the future investigation.

Following completion of data collection, responses could be analyzed using the standard analytical workflow employed in Mind Genomics studies. The independent contribution of individual communication elements could be estimated using ordinary least-squares (OLS) regression, while respondents with similar response patterns could subsequently be grouped into communication mindsets using clustering procedures commonly applied in Mind Genomics investigations, including K-means clustering.[16,17] Because the present article is conceptual, these analytical procedures are described solely to illustrate how the proposed framework might be evaluated in future empirical research.

The resulting analyses could provide insight into which communication elements are associated with more favorable evaluations of serious illness conversations and whether distinct communication mindsets emerge among different groups of respondents. Such findings could contribute to a better understanding of variation in communication preferences during palliative care consultations and may inform future efforts to develop more individualized communication strategies. Depending on the findings of future empirical studies, the identified communication mindsets could also provide the basis for developing a Personal Viewpoint Identifier (PVI) to facilitate the rapid identification of communication preferences and support more personalized communication during serious illness conversations.

6. Discussions

The present paper proposes a conceptual Mind Genomics framework for empathetic communication in palliative care by translating key communication principles identified in the literature into a structured four-dimensional communication architecture. Rather than introducing a new clinical communication guideline or recommending a single optimal communication strategy, the framework is intended to illustrate how palliative care communication may be conceptualized within the standard Mind Genomics methodology and to provide a conceptual foundation for future Mind Genomics studies.

Existing communication frameworks, including SPIKES, the Serious Illness Conversation Guide, and the ASCO Patient–Clinician Communication Guideline, provide evidence-based recommendations for conducting difficult conversations while promoting clear communication, empathic responses, shared decision-making, and discussions of patients' goals and preferences.[7-9] The present conceptual framework complements

these established approaches by focusing not on the communication recommendations themselves, but on how different combinations of clinically appropriate communication messages could be systematically investigated to better understand variation in communication preferences across individuals.

A distinguishing feature of the proposed framework is its organization of palliative care communication into four complementary communication lenses representing the introduction of serious clinical information, responses to emotional reactions, discussions regarding future care, and support for subsequent decision-making. Although these communication lenses broadly reflect the progression of many serious illness consultations, they are not intended to represent a rigid communication sequence. Instead, they provide a structured conceptual architecture that may support the development of realistic consultation vignettes while maintaining compatibility with the standard Mind Genomics methodology.

An additional conceptual contribution of the proposed framework is the recognition that communication preferences may differ across individuals despite broad agreement regarding the principles of compassionate and patient-centred care. Rather than assuming that one communication approach is universally preferred, the Mind Genomics methodology provides an opportunity to systematically explore how different combinations of communication messages are perceived and whether distinct communication mindsets emerge among respondents. Such an approach may contribute to a more nuanced understanding of communication preferences than is possible through the evaluation of individual communication behaviour in isolation.

Because the present paper is conceptual, no empirical data are presented, and the proposed story questions, communication elements, and analytical workflow should be regarded as theoretical components intended for subsequent evaluation. Future Mind Genomics studies involving patients, family caregivers, healthcare professionals, or other relevant stakeholder groups will be necessary to determine whether the proposed framework can identify reproducible communication mindsets and whether these insights may contribute to more individualized approaches to serious illness communication.

Overall, the framework presented in this paper illustrates one possible application of the Mind Genomics methodology within palliative care. By integrating established communication principles with an experimental message-based methodology, the proposed framework may provide a useful conceptual foundation for future investigations seeking to better understand how different individuals perceive and respond to communication during serious illness conversations.

7. Conclusion

This paper presents a conceptual Mind Genomics framework for empathetic communication in palliative care by organizing communication into four story questions and sixteen communication elements compatible with the standard Mind Genomics methodology. Rather than proposing a new clinical communication guideline, the framework is intended to provide a theoretical foundation for future Rule Developing Experiments (RDEs) that may explore communication mindsets and individual variation in responses to serious illness conversations. If evaluated through future empirical research, this conceptual approach may contribute to the development of more personalized communication strategies that complement existing evidence-based palliative care communication practices.

8. Conflicts of Interest

The authors declare that they have no conflicts of interest.

9. AI Use Statement

ChatGPT (OpenAI) was used for the preparation of Figures 1 and 2 and for language editing. Idea Coach, integrated within the BimiLeap platform, was used to assist in developing the proposed story questions and communication elements.

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