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Using AI and Mind Genomics to simulate and understand what a patient may be thinking when visiting a general practitioner in a new city

Abstract

Relocating to a new city disrupts the psychological, social, and logistical structures that normally support a patient's sense of stability. When individuals attend their first general practitioner (GP) visit in this unfamiliar environment, they bring heightened uncertainty, reduced social buffering, and increased sensitivity to clinical cues. Early clinical encounters shape trust, adherence, and long-term engagement with healthcare systems, making the first visit disproportionately influential. Artificial intelligence (AI) and Mind Genomics offer complementary tools for understanding this moment: AI simulates internal monologues and interpretive frames, while Mind Genomics models the microelements that may drive reassurance or anxiety. This study presents a simulation-based conceptual framework rather than an empirical respondent-level analysis. By integrating both approaches, the paper maps the cognitive and emotional landscape of the first visit experience and offers exploratory insights to inform future empirical validation and communication strategies.

Keywords: AI simulation, Mind Genomics, patient communication, general practitioner, healthcare relocation, reassurance modeling, clinical interaction

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Abbreviations: GP, general practitioner; AI, artificial intelligence; BDV, binary dependent variable

Introduction

The first visit to a general practitioner in a new city is a psychologically dense event shaped by uncertainty, vulnerability, and the desire for stability. Patients often arrive with fragmented expectations, incomplete medical continuity, and heightened sensitivity to interpersonal cues.[1,2] Relocation disrupts social networks, increases cognitive load, and heightens the emotional stakes of clinical encounters.[3,4] Residential mobility is a common social phenomenon across healthcare systems, resulting in a steady flow of patients seeking care in unfamiliar clinical environments. In this context, the GP becomes not only a medical provider but a symbolic anchor of safety, competence, and belonging.

Communication research consistently shows that early interactions with healthcare providers shape trust, adherence, and satisfaction.[5,6] Patients rely on heuristics—tone of voice, clarity, warmth, eye contact—to assess whether the clinician understands them, respects them, and can guide them through an unfamiliar system.[7,8] These heuristics become even more salient when patients lack local social support or familiarity with the healthcare environment.[9,10]

Mind Genomics provides a structured method for decomposing the encounter into discrete micro-elements and measuring their psychological impact.[11,12] AI complements this by simulating internal monologues, emotional states, and interpretive scripts that patients may not articulate explicitly.[13,14] Together, these tools create a multidimensional model of the first-visit experience, revealing how patients may interpret the doctor's behavior, how fears and expectations shape the encounter, and how clinicians can adapt communication to different psychological profiles.

Background

Patients entering a new healthcare environment rely heavily on cognitive shortcuts to assess trustworthiness, competence, and empathy.[2,15] These shortcuts are shaped by prior experiences, cultural expectations, and the emotional turbulence of relocation, which together create a heightened sensitivity to cues such as tone of voice, waiting room design, and the doctor's initial greeting.[5,7] When patients lack local social support, these cues become even more salient because they substitute for the reassurance normally provided by familiar networks.[9,10]

Mind Genomics research demonstrates that individuals interpret the same healthcare information through distinct cognitive frames or mind-sets, each emphasizing different aspects of the encounter.[11,12] One mind-set may prioritize clarity and structure, another may focus on emotional reassurance, and a third may value autonomy and efficiency. These mind sets represent structured interpretive patterns that can be modeled and examined within the simulation framework.

While prior research has examined first-visit communication dynamics and relocation-related stress as separate domains, relatively few studies have explored how these processes intersect within the context of a patient's initial consultation in a new healthcare environment. This intersection represents a conceptual gap that the present framework seeks to address.

AI simulations complement this by generating internal monologues that reflect different psychological profiles.[13,14] Recent literature further highlights the expanding role of artificial intelligence and large language model–based virtual simulations in medical and nursing education, particularly in communication and clinical skills development.[16,17] These simulations help clinicians anticipate diverse reactions, understand hidden anxieties, and recognize how small communication choices can dramatically alter the patient's interpretation of the encounter. Together, AI and Mind Genomics create a powerful framework for understanding the first visit experience in a new city.

Material and methods

Conceptual framework

The present study develops a simulation-based conceptual framework integrating Artificial Intelligence (AI) and Mind Genomics methodology to model how patients may interpret a first general practitioner (GP) visit following relocation to a new city. The analytic procedures described below follow established Mind Genomics logic[11,12] and are presented to demonstrate how such an investigation could be operationalized in practice. The modeling outputs shown in subsequent sections (coefficients and mindset structures) are illustrative and hypothesis-generating rather than empirical population estimates derived from respondent sampling.

Element creation

Element construction follows the foundational logic of Mind Genomics, which seeks to map the psychological landscape of a decision or experience by systematically sampling from the universe of possible thoughts, feelings, and interpretations.[11] Sixteen elements (A1–D4) were developed to represent plausible micro-moments within a first GP visit in a new city. The elements span four conceptual domains: cognitive clarity, patient fears, relational signals, and reassurance behaviors. These elements were generated using AI-assisted synthesis informed by established research in communication theory, stress appraisal, trust formation, and patient-centered care. Their selection reflects theoretical grounding rather than outputs of empirical sampling Table 1.

Table 1 The 16 elements created by AI and the rationale for each element

Element	Rationale
A1. The doctor explains things clearly	*Patients in new environments often feel disoriented, and clear explanations help them regain a sense of cognitive control. When information is structured and easy to follow, patients behave with more confidence and ask more relevant questions. Clarity reduces the likelihood of misinterpretation, which is especially important when the patient lacks familiarity with local healthcare norms.*
A2. The doctor listens without interrupting	*Patients who feel heard experience a reduction in physiological stress responses, which improves their ability to communicate effectively. When the doctor refrains from interrupting, the patient behaves with more openness and shares more accurate information. This uninterrupted listening signals respect, which strengthens trust in an unfamiliar environment.*
A3. The doctor reviews past medical history carefully	*Patients relocating to a new city often fear that their medical continuity has been disrupted, and careful review helps restore that continuity. When the doctor demonstrates familiarity with the patient's history, the patient behaves with greater openness and less defensiveness. This action signals diligence and competence, which reassures patients who are evaluating a new healthcare system.*
A4. The doctor offers a plan for next steps	*Patients in unfamiliar settings crave structure, and a clear plan provides a roadmap that reduces uncertainty. When next steps are articulated, patients behave with more compliance and follow-through. This sense of direction helps anchor the patient psychologically, making the new healthcare environment feel more navigable.*
B1. Fear of being dismissed or minimized	*Patients entering a new city often worry that their concerns will not be taken seriously, especially without an established relationship. This fear leads to guarded behavior, such as withholding information or overexplaining symptoms. The anticipation of dismissal heightens vigilance and reduces the patient's ability to trust the clinician.*
B2. Fear of unexpected costs or insurance issues	*Financial uncertainty is a major stressor for patients navigating a new healthcare system, and this fear can overshadow clinical concerns. Patients may behave cautiously, asking fewer questions or avoiding recommended tests due to cost worries. This anxiety can distort their interpretation of the doctor's recommendations, making even neutral statements feel threatening.*
B3. Fear of receiving bad news without support	*Patients who have recently relocated often lack local emotional networks, making the prospect of bad news feel more overwhelming. This fear can cause patients to behave tensely, scanning the doctor's tone and facial expressions for signs of danger. The absence of support amplifies emotional vulnerability, making the encounter feel higher stakes.*
B4. Fear of not understanding medical terminology	*Patients in new environments may already feel cognitively overloaded, and unfamiliar terminology adds another layer of confusion. This fear leads to behaviors such as nodding without comprehension or avoiding clarification questions. The resulting misunderstanding can undermine the patient's sense of agency and increase anxiety.*
C1. The doctor greets the patient warmly	*A warm greeting immediately reduces social distance, which is especially important when the patient feels like an outsider in a new city. This warmth encourages more relaxed patient behavior, such as open body language and fuller disclosure. The greeting sets the emotional tone for the encounter, shaping how subsequent information is interpreted.*
C2. The doctor maintains eye contact	*Eye contact signals engagement and respect, which patients rely on when evaluating a new clinician. When the doctor maintains eye contact, patients behave with more confidence and feel safer expressing concerns. This nonverbal cue strengthens the relational foundation of the encounter, making the patient more receptive to guidance.*
C3. The doctor uses a calm, steady tone	*A calm tone regulates patient anxiety by signaling that the situation is manageable and under control. Patients respond behaviorally by slowing their speech, breathing more evenly, and presenting information more coherently. This vocal steadiness helps counteract the heightened arousal that often accompanies first visits in unfamiliar settings.*
C4. The doctor checks for understanding	*Checking for understanding reassures patients that the doctor is committed to mutual clarity, which is crucial when the patient fears miscommunication. This action encourages patients to behave more actively, asking questions and correcting misunderstandings. The verification process strengthens alignment and reduces the cognitive burden of navigating a new system.*

Table 1 Continued...

Element	Rationale
D1. The doctor summarizes the patient's concerns	*Summaries demonstrate active listening, which patients interpret as a sign of respect and competence. When concerns are accurately reflected back, patients behave with increased trust and reduced defensiveness. This action helps organize the encounter cognitively, making the patient feel more grounded.*
D2. The doctor provides written instructions	*Written instructions help patients manage the complexity of a new healthcare environment by giving them a tangible reference. Patients behave more confidently when they have something to review after the visit, reducing reliance on memory under stress. This material also supports follow-through, improving adherence to recommendations.*
D3. The doctor invites questions	*Inviting questions reduces the power asymmetry that often intimidates patients in unfamiliar settings. This invitation encourages patients to behave more assertively, voicing concerns they might otherwise suppress. The act signals that the doctor values collaboration, which strengthens rapport.*
D4. The doctor acknowledges the stress of relocation	*Acknowledging relocation stress validates the patient's emotional experience, which is often invisible in clinical settings. This validation encourages patients to behave more openly, sharing contextual details that improve diagnostic accuracy. The acknowledgment also reduces feelings of isolation, making the new city feel less alien.*

Vignette construction

The framework draws upon the classic Mind Genomics vignette method, in which respondents evaluate short combinations of elements rather than isolated statements.[12] In a standard empirical implementation, each vignette would contain two to four elements, with no more than one element drawn from each conceptual category. This design mirrors real clinical encounters, where individuals interpret multiple communication cues simultaneously. The vignette structure described here illustrates experimental logic consistent with Mind Genomics methodology,[12] serving as a template for potential empirical application.

Rating structure and binary dependent variable (BDV) transformation

In a typical Mind Genomics study, respondents evaluate each vignette on a five-point anchored scale reflecting an outcome such as reassurance.[5] Ratings of 4 or 5 are often recoded as 100, representing a strong positive response, while ratings of 1–3 are recoded as 0, representing a weak or absent response. This binary dependent variable (BDV) transformation sharpens contrast between reassuring and non-reassuring experiences and has been widely used in prior Mind Genomics research.[11] The BDV logic described here illustrates analytic procedure rather than reporting empirical statistical analysis.

Regression modeling of element contributions

Mind Genomics commonly applies ordinary least squares regression without a constant (fitting through the origin) to estimate the contribution of each element to the outcome variable.[12] This modeling approach ensures that each microelement independently contributes to the outcome without reliance on a baseline intercept. Within this conceptual framework, regression logic is presented to demonstrate how microelements could be quantified and compared in an empirical implementation. The coefficient values presented later function as illustrative modeling outputs designed to clarify interpretive structure rather than as statistical estimates derived from respondent-level data.

Mindset segmentation using clustering logic

To explore heterogeneity in interpretation, Mind Genomics frequently applies clustering procedures such as k-means clustering to respondent-level coefficient patterns.[11] Distance measures are often based on correlation-derived metrics, including 1 minus the Pearson correlation between coefficient profiles. In empirical applications, clustering would identify distinct interpretive orientations ("mindsets"), with the optimal number of clusters determined through interpretability criteria and statistical diagnostics. The segmentation structures presented in this study serve as conceptual demonstrations of how heterogeneous psychological orientations may emerge within a real-world implementation. They illustrate analytic possibilities rather than validated population distributions. AI is used within this framework to simulate modeling outputs and to demonstrate how clustering structures may be visualized. In applied research contexts, such analyses may be executed using specialized platforms implementing Mind Genomics methodology.

Results

Illustrative coefficient structure and conceptual mind-set segmentation

The coefficient table illustrates the relative contribution of each element within the modeling framework. Each coefficient quantifies the strength of an element's effect, with higher values indicating a more substantial contribution and lower values indicating minimal impact. Readers should begin by scanning each row to identify which elements produce the strongest effects. This initial review establishes the overall distribution of influence and highlights the elements that function as primary drivers within the model. Table 2 presents the illustrative coefficient structure across the modeled framework. Table 3 shows an attempt to extract a pattern of meaning from the elements, based upon the magnitude of the coefficients.

Table 2 Illustrative coefficient structure across the modeled reassurance framework

Element	Coefficient (Total)
D4. The doctor acknowledges the stress of relocation	29
A1. The doctor explains things clearly	26
A4. The doctor offers a plan for next steps	24
C4. The doctor checks for understanding	22
A2. The doctor listens without interrupting	17
D1. The doctor summarizes the patient's concerns	16
C1. The doctor greets the patient warmly	15
C3. The doctor uses a calm, steady tone	14
D3. The doctor invites questions	13
A3. The doctor reviews past medical history carefully	12
C2. The doctor maintains eye contact	11
D2. The doctor provides written instructions	10
B1. Fear of being dismissed or minimized	9
B2. Fear of unexpected costs or insurance issues	7

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Table 2 Continued...

Element	Coefficient (Total)
B3. Fear of receiving bad news without support	6
B4. Fear of not understanding medical terminology	5

Table 3 Strong performing elements within the illustrative coefficient structure

Element	Coefficient Total	Interpretation
D4. The doctor acknowledges the stress of relocation	29	Offers emotional validation and transforms the encounter into a human connection.
A1. The doctor explains things clearly	26	Provides cognitive structure, reduces ambiguity, and signals competence in an unfamiliar environment.
A4. The doctor offers a plan for next steps	24	Gives the patient a roadmap, reducing uncertainty and creating forward momentum.
C4. The doctor checks for understanding	22	Demonstrates commitment to mutual clarity and reduces cognitive load.

The coefficient values presented here are illustrative modeling outputs generated to demonstrate analytic interpretation within the conceptual framework. They do not represent empirical estimates derived from sampled respondents. The interpretive value of a coefficient table increases when readers examine patterns across elements and conceptual groupings. Comparing coefficients across conceptual mind-set groupings illustrates how interpretive differences may emerge within heterogeneous patient orientations. These contrasts illuminate the underlying structure of heterogeneity in human interpretation and provide insight into the psychological mechanisms that shape responses. Table 4 illustrates three conceptual mind-set orientations generated through AI-assisted modeling to demonstrate potential heterogeneity.

Table 4 Strong performing elements and interpretation for the three synthesized mind-sets

Element	Coefficient
Mind-Set 1: Structure-Seekers 42%	This conceptual group emphasizes clarity, organization, and cognitive structure.
A1. The doctor explains things clearly	29
A4. The doctor offers a plan for next steps	27
C4. The doctor checks for understanding	24
D1. The doctor summarizes the patient's concerns	18
All other elements	3–17
Mind-Set 2: Reassurance-Seekers 33%	This conceptual group emphasizes warmth, emotional safety, and acknowledgment.
A2. The doctor listens without interrupting	22
C1. The doctor greets the patient warmly	21
C3. The doctor uses a calm, steady tone	20
D4. The doctor acknowledges the stress of relocation	29
All other elements	3–18
Mind-Set 3: Autonomy-Seekers 25%	This conceptual group emphasizes independence, tools, and actionable information.
A3. The doctor reviews past medical history carefully	21
D2. The doctor provides written instructions	19
D3. The doctor invites questions	18
C2. The doctor maintains eye contact	17
All other elements	3–16

The percentage distributions are included to demonstrate how segmentation may be proportionally represented in an empirical implementation. They are illustrative rather than population-based estimates. Attention to these patterns may inform the development of effective communication strategies. Coefficient patterns indicate which elements warrant emphasis, which require modification, and which may be unnecessary for particular audiences. They also reveal latent psychological structures—such as preferences for clarity, emotional reassurance, or autonomy—that influence how individuals process information and regulate emotion. By interpreting coefficients relationally rather than in isolation, researchers and clinicians gain a clearer understanding of how people think, feel, and behave within the clinical encounter.

AI's contribution to the study

Simulated data plays an important role in teaching because it lets students explore ideas that real situations may hide or make hard to see. It creates a safe space where learners can test patterns, try new questions, and see what changes when different pieces of information move. It helps teachers show how small details can shape big outcomes, even when those details do not appear in everyday experience. It also encourages students to notice questions they might never think to ask, because the simulation makes hidden patterns clear and easy to study. When students use simulated data, they learn to look closely, think carefully, and discover insights that would otherwise stay unnoticed.

In this context, simulated data functions as a pedagogical and hypothesis-generating device rather than as a substitute for empirical patient sampling. Table 5 gives a sense of the different functions played by AI in this paper.

Table 5 Three different functions played by AI in this paper

AI Function	Description
Element Generation	AI draws from clinical communication research, patient experience literature, and psychological models to create realistic, high-impact elements.
Narrative Simulation	AI generates internal monologues for both patient and doctor, revealing hidden fears, assumptions, and interpretive gaps.
Clustering Simulation	AI performs k-means clustering using the 1 minus Pearson distance measure to examine similarities in coefficient patterns across conceptual mind-set structures

AI to simulate the interaction of a doctor and a patient

AI-generated doctor–patient interactions give medical professionals a powerful way to study communication because they show how real conversations might unfold in everyday practice. The interaction works like a short play, with each line revealing how people speak, pause, worry, or relax during a medical visit. The AI also explains what each person might be thinking, which lets the reader listen to both the play and the playwright at the same time. This dual view helps medical professionals understand hidden feelings that shape behavior. When learners see both speech and thought together, they gain a deeper sense of how communication works in real life.

AI simulation also helps medical professionals learn because it makes complex topics feel real and easy to understand. Instead of reading abstract rules, learners watch characters interact in a way that feels familiar and human. The scenes show how tone, timing, and small choices can change the entire visit. This makes the learning active, not passive, because the reader can imagine being in the room. When the situation feels real, the lessons stay in the mind longer and become easier to use in practice. AI also gives teachers and students a tool with almost unlimited flexibility. It can create new scenes in moments, change personalities, adjust emotions, and explore rare or difficult situations that might never appear in a classroom. This flexibility lets learners practice many types of encounters without waiting for them to happen in real life. It also helps them prepare for situations that might surprise them later. When AI can create any scene on demand, learning becomes faster, richer, and more complete.

AI generated interactions also help medical professionals ask better questions about communication. When they see how different personalities react to the same situation, they notice patterns they might miss in real practice. They learn to ask why a patient reacts a certain way, why a doctor chooses a certain tone, and how small changes could improve the visit. This habit of noticing and questioning strengthens clinical judgment. When learners use AI scenes to explore these questions, they become more thoughtful, more observant, and more prepared for real patients. Table 6 shows four sets of interactions, between a patient interviewing a doctor and the doctor. The four scenes show what happens when the doctor and/or the patient either 'click' or when there is a lack of 'clicking' on one or both sides. It is tables like these that can be generated by AI to teach the softer side of medicine. The structures presented in this section illustrate analytic logic within a simulation-based framework. Empirical investigation in real clinical settings will be required to assess the applicability of the proposed model.

Table 6 Four synthesized scenarios between a patient who is interviewing a new doctor, and the doctor

Speaker	Spoken Words	Internal Thoughts
Scene 1 — Doctor and Patient Naturally Click		
Patient	I just moved here and want to make sure I stay healthy.	*This feels like a good place to start fresh.*
Doctor	Welcome. I'm glad you came in so we can get you settled.	*This patient seems open and easy to help.*
Patient	That makes me feel better already.	*Good, this doctor understands me.*
Doctor	Let's go through your history together.	*We're already working well together.*
Patient	I brought my records if that helps.	*I want this to go smoothly.*
Doctor	Perfect. We'll review them and build a plan.	*This visit will be simple and productive.*
Patient	I appreciate that. Moving has been stressful.	*It feels good to be heard.*
Doctor	I understand. We'll take this step by step.	*This patient trusts me already.*
Patient	Thank you. I feel more settled now.	*This doctor makes the new city feel less scary.*
Doctor	You're welcome. Let's make this a strong start.	*A great first visit.*
Scene 2 — Doctor Easy, Patient "Difficult"		
Patient	I moved here last week, and everything feels confusing.	*I don't trust this place yet.*
Doctor	Moving is stressful. We can go slowly.	*Stay calm and steady.*
Patient	I don't want to repeat my whole history again.	*Why is this so much work.*
Doctor	Tell me only what feels important right now.	*Give them control so they relax.*
Patient	Fine, but I'm not sure where to start.	*This is overwhelming.*
Doctor	Start anywhere. I'll guide you.	*Keep the tone gentle.*
Patient	I guess my sleep has been bad since the move.	*Maybe this doctor isn't so bad.*
Doctor	That's common. We can talk about ways to help.	*They're opening up a little.*
Patient	Maybe. I'm still not sure about this place.	*I need more time to trust.*
Doctor	That's okay. We'll build trust at your pace.	*Patience will help this visit succeed.*
Scene 3 — Doctor "Difficult," Patient Easy		

Table 6 Continued...

Speaker	Spoken Words	Internal Thoughts
Patient	I just moved here and want to start fresh with my health.	*I hope the doctor is kind.*
Doctor	Sit down and tell me your main issue quickly.	*I'm behind schedule.*
Patient	Sure, I can go step by step.	*This feels rushed, but I'll stay calm.*
Doctor	Keep it brief. I only need the basics.	*I don't have time for long stories.*
Patient	Okay, I've had some trouble sleeping.	*I hope this is enough detail.*
Doctor	Everyone has trouble sleeping after a move.	*Let's move this along.*
Patient	I understand. I just want to make sure it's normal.	*I'm trying to cooperate.*
Doctor	It's normal. Let's move to the next topic.	*Stay efficient.*
Patient	Of course. I can answer whatever you need.	*I'll keep things simple.*
Doctor	Good. That will help us finish faster.	*Finally, some efficiency.*
Scene 4 — Doctor "Difficult," Patient "Difficult"		
Patient	I moved here, and I don't know if this place can help me.	*This better not be a waste of time.*
Doctor	If you want help, explain your problem clearly.	*This patient is already testing me.*
Patient	I am explaining. You're just not listening.	*Why is this doctor acting like this.*
Doctor	Then speak more directly so we can get through this.	*This will be a long visit.*
Patient	Fine. I haven't been sleeping well since the move.	*Let's see if they take this seriously.*
Doctor	Lots of people don't sleep well. That's not unusual.	*This doesn't sound serious.*
Patient	You're not taking me seriously at all.	*I knew this would happen.*
Doctor	I can't help if you won't stay focused.	*This patient is making everything harder.*
Patient	I'm focused. You're the one rushing.	*This doctor is impossible.*
Doctor	Then let's restart and try to be clear.	*Maybe we can salvage this.*

Discussion

The modeled structures presented in this framework suggest that the first GP visit in a new city is not simply a clinical interaction, but a psychologically charged moment shaped by uncertainty, vulnerability, and the need for stability. Patients arrive with heightened sensitivity to interpersonal cues, relying on heuristics such as tone, clarity, warmth, and eye contact to assess whether the clinician is trustworthy and competent.[5,7] These cues become even more salient when patients lack local social support or familiarity with the healthcare system.[9,10] The strong elements identified in the illustrative coefficient structure—clear explanations, next-step plans, checks for understanding, and acknowledgment of relocation stress—reflect core psychological needs for structure, validation, and cognitive clarity.[2,6]

The simulated mindset segmentation suggests that individuals may interpret the encounter in heterogeneous ways. Structure-Seekers prioritize cognitive organization and predictability, Reassurance-Seekers prioritize emotional safety and relational warmth, and Autonomy-Seekers prioritize independence and actionable information. These simulated mindsets appear conceptually consistent with established models of coping, appraisal, and stress processing.[3,4] They also mirror patterns observed in patient-centered care research, where different individuals require different forms of support to feel secure and engaged.[5,6] Recognizing these conceptual mind-sets pattern may help clinicians tailor communication in real time, improving alignment and reducing the risk of misinterpretation.

The present work is based on AI-generated modeling; therefore, findings should be interpreted as conceptual and exploratory rather than as empirical validation of patient behavior. The patterns observed here illustrate possible psychological structures that warrant further investigation in real-world clinical populations.

AI simulations add a narrative dimension to the quantitative structure provided by Mind Genomics. By generating internal monologues for both patient and doctor, AI reveals the hidden fears, assumptions, and interpretive scripts that shape the encounter.[13,14] These simulations help clinicians anticipate emotional reactions, understand how small communication choices can escalate or de-escalate anxiety, and appreciate the psychological complexity of first-visit encounters. When combined with Mind Genomics, AI provides a dual-lens approach that captures both the structural and narrative aspects of patient experience.

The integration of these methods illustrates how reassurance can be conceptualized as a structured psychological outcome influenced by specific microelements of communication.Clear explanations reduce cognitive load, next-step plans reduce uncertainty, checks for understanding reduce misalignment, and acknowledgment of relocation stress reduces emotional isolation. The modeled patterns appear conceptually consistent with broader research on trust formation, health literacy, and patient engagement.[8,18] Together, they offer a practical roadmap for clinicians seeking to improve the first-visit experience for patients navigating unfamiliar environments.

To examine the applicability of this framework in real clinical settings, future research could recruit adult patients attending their first consultation following relocation to a new city or healthcare system. Participants would complete a standard Mind Genomics vignette experiment, evaluating systematically permuted combinations of communication elements. Reassurance ratings could be transformed into a binary dependent variable and analyzed using ordinary least squares regression without an intercept, with model fit indices (e.g., R^2) reported to quantify explanatory strength. Mind-set segmentation could be conducted using k-means clustering, with the optimal number of clusters determined using silhouette analysis and stability testing across repeated random initializations. Such an empirical design would allow direct validation of the illustrative structures presented in this conceptual framework.

Conclusion

This work illustrates how a simulation framework combining Mind Genomics and artificial intelligence can be used to model the psychological structure of a patient's first general practitioner visit in a new city. By decomposing the encounter into discrete communication elements and examining their patterned contributions to reassurance, the study illustrates how clarity, structure, emotional acknowledgment, and relational cues may shape patient interpretation during moments of uncertainty. The modeled mind-set patterns further suggest that reassurance is not uniform, but may reflect different interpretive orientations toward structure, emotional safety, or autonomy. Because the present analysis is based on synthetic respondents and modeled data, the findings should be regarded as conceptual rather than empirical. Nonetheless, the framework offers a systematic foundation for future investigation of communication microelements and psychological response in real clinical populations.

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Conflicts of interest

The authors declare that there is no conflict of interest.

References

1. Mechanic D, Meyer S. Concepts of trust among patients with serious illness. *Soc Sci Med.* 2000;51(5):657–668.
2. Hall JA, Roter DL, Katz NR. Meta-analysis of correlates of provider behavior in medical encounters. *Med Care*. 1988;26(7):657–675.
3. Folkman S, Moskowitz JT. Coping: Pitfalls and promise. *Annu Rev Psychol*. 2004;55:745–774.
4. Lazarus RS, Folkman S. Stress, appraisal, and coping. New York: Springer; 1984.
5. Stewart M, Brown JB, Donner A, et al. The impact of patient-centered care on outcomes. *J Fam Pract*. 2000;49(9):796–804.
6. Epstein RM, Street RL. The values and value of patient-centered care. *Ann Fam Med*. 2011;9(2):100–103.
7. Roter DL, Hall JA. Doctors talking with patients / Patients talking with doctors. Westport (CT): Praeger; 2006.
8. Ong LM, de Haes JC, Hoos AM, et al. Doctor–patient communication: A review of the literature. *Soc Sci Med*. 1995;40(7):903–918.
9. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychol Bull*. 1985;98(2):310–357.
10. Uchino BN. Social support and health: A review of physiological processes. *Curr Dir Psychol Sci*. 2006;15(5):265–268.
11. Moskowitz HR. Mind Genomics: The new science of everyday life. White Plains (NY): Mind Genomics Associates; 2012.
12. Gofman A, Moskowitz HR. Isomorphic permuted experimental designs and their application in conjoint analysis. *J Sens Stud*. 2010;25(1):127–145.
13. Topol E. Deep medicine: How artificial intelligence can make healthcare human again. New York: Basic Books; 2019.
14. Shortliffe EH, Sepúlveda MJ. Clinical decision support in the era of artificial intelligence. *JAMA*. 2018;320(21):2199–2200.
15. Street RL. How clinician–patient communication contributes to health improvement. *Patient Educ Couns.* 2013;92(3):286–291.
16. Roveta A, Castello LM, Massarino C, et al. Artificial intelligence in medical education: A narrative review on implementation, evaluation, and methodological challenges. *AI.* 2025;6(9):227.
17. Jo YW, Lee M, Yang HJ. Large language model-based virtual patient simulations in medical and nursing education: A review. *Appl Sci*. 2025;15(22):11917.
18. Levinson W, Lesser CS, Epstein RM. Developing physician communication skills for patient-centered care. *Health Aff (Millwood)*. 2010;29(7):1310–1318.