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Translating risk into everyday language: health literacy, uncertainty, and patient decision-making in Indonesian clinical encounters

Wulan Kurnia Sari
Universitas Sriwijaya Palembang, Indonesia

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ABSTRACT

Background: Risk communication in Indonesian clinical encounters remains shaped by unequal health literacy, medical uncertainty, professional authority, and uneven access to patient-centred explanation. **Objective:** This study examines how clinical risk, uncertainty, and treatment-relevant information are translated into everyday Indonesian language and how such translation enables or constrains patient decision-making. **Method:** This study applies qualitative discourse-pragmatic analysis to a 25-item corpus of public patient-facing health materials, consent-related texts, hospital education documents, and regulatory-context sources, coded through risk translation, uncertainty management, and decision-participation indicators. **Results:** Risk is most frequently translated as everyday manageability through chronic disease control, warning signs, treatment adherence, and professional escalation rather than abstract probability. Uncertainty is commonly organised through conditional boundaries, patient profiles, safety thresholds, and institutional procedures that make indeterminate clinical futures practically navigable. Patient decision-making appears as guided participation, where patients are encouraged to act responsibly but are less frequently invited to compare options, express preferences, or deliberate over alternatives. **Implication:** This study argues that health literacy should be understood as a communicative condition of clinical justice rather than merely as an individual patient capacity. **Novelty:** This study contributes an integrated Indonesian framework for analysing risk translation, uncertainty disclosure, and patient participation within one consistent discourse corpus.

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Corresponding Author:

Wulan Kurnia Sari
Universitas Sriwijaya Palembang, Indonesia
Jl. Srijaya Negara, Bukit Besar, Palembang, Sumatera Selatan, 30139, Indonesia
Email: 10013682631009@student.unsri.ac.id

1. INTRODUCTION

Indonesia's clinical encounters now unfold within a rapidly expanding but linguistically uneven health system. Jaminan Kesehatan Nasional covered 97.6% of Indonesia's population in 2024, while national access still depends on communication across urban, rural, multilingual, and resource-constrained settings. The scale of interaction is substantial: Indonesia has thousands of hospitals and more than ten thousand public community health centres, making everyday doctor–patient talk a decisive site where medical information is interpreted, simplified, accepted, questioned, or deferred. Official health reporting also positions health facilities, financing, human resources, and technology as core domains of national health system monitoring. In this context, risk is never communicated as information alone. It is translated through probability terms, warnings, analogies, consent explanations, and recommendations that patients must understand under

pressure. This makes Indonesian clinical risk communication a crucial object of inquiry because health literacy is enacted at the moment when patients are asked to make decisions amid uncertainty.

Existing research has established that limited health literacy affects how patients understand treatment options, probabilities, and harms in shared decision-making [1], [2], [3]. Studies on risk communication show that numeric probabilities, verbal probability terms, and decision aids can support comprehension, but only when they are designed for patients' interpretive capacities rather than professional convenience [4], [5], [6]. Work on diagnostic uncertainty further demonstrates that uncertainty is often softened, delayed, or fragmented during consultations, shaping patient experience without always being explicitly named [7], [8], [9]. Indonesian medical-linguistic scholarship has examined informed consent, directive speech acts, multilingual barriers, emergency communication, telemedicine asymmetry, and AI-generated simplification [10], [11], [12], [13], [14], [15]. Yet less is known about how clinical risk is translated into everyday Indonesian language as an interactional resource for patient decision-making.

This study examines how Indonesian clinical communication transforms risk, uncertainty, and medical options into patient-accessible language. It asks three interrelated questions: how are clinical risks, probabilities, and uncertainties linguistically framed in patient-facing Indonesian medical discourse; what strategies are used to convert technical or probabilistic information into everyday language; and how do these strategies support or constrain patient participation in decision-making? Rather than treating comprehension as an individual deficit, this study approaches health literacy as an interactional accomplishment distributed across clinicians, texts, institutional norms, and patients' opportunity to respond. This orientation follows recent work that conceptualises shared decision-making as option talk, risk explanation, preference elicitation, and deliberative support, not merely information delivery [16], [17], [18]. Methodologically, this study analyses public Indonesian health communication materials, clinical guidance, patient education texts, and consent-related discourse to identify how accessible meaning is produced before, during, and around clinical decision-making.

This study advances an argument that risk translation is not a neutral act of simplification but a pragmatic negotiation of authority, uncertainty, and responsibility. When clinicians or institutions translate risk into everyday language, they do more than make terminology easier; they define what counts as relevant danger, acceptable uncertainty, reasonable choice, and patient responsibility. This argument is consistent with evidence that language-concordance, plain-language strategies, decision aids, and culturally sensitive communication can either reduce or reproduce inequality depending on how they are embedded in clinical interaction [19], [20], [21]. This study therefore tests an interpretive proposition: patient decision-making becomes more participatory when risk is framed through transparent probability, explicit uncertainty, practical consequence, and space for patient questioning. Conversely, participation is narrowed when risk is communicated through jargon, vague reassurance, unexplained authority, or option closure. The implication is theoretical as well as practical: health literacy should be analysed as a communicative condition of clinical justice.

2. LITERATURE REVIEW

2.1. Health literacy

Health literacy is increasingly understood not as an individual patient attribute but as a relational capacity produced through clinical language, institutional design, and communicative support. Earlier approaches often defined it as patients' ability to obtain, process, and understand health information, yet recent work shifts attention toward how healthcare systems make information usable for different publics [1], [22], [23]. This distinction is crucial because limited comprehension may reflect not patient failure, but professional jargon, dense consent forms, culturally distant explanations, or hurried consultations. Studies on cancer, kidney care, and rural communities show that low health literacy restricts decision participation when information is technically available but pragmatically inaccessible [24], [25], [26].

Health literacy can be analysed through several indicators: understandability, actionability, linguistic accessibility, cultural fit, and interactional responsiveness. Decision-aid research emphasises that accessible materials should explain options, benefits, harms, and probabilities in language patients can apply to real choices, not merely read passively [1], [3]. Provider-focused studies identify plain language, teach-back, chunking, visual explanation, and question invitations as strategies for supporting patients with limited literacy [2], [27]. Indonesian research adds that jargon, multilingual barriers, and institutional authority can complicate comprehension in consent and clinical consultations [10], [12], [11]. These indicators position health literacy as an interactional condition for participation.

2.2. Risk communication

Risk communication refers to how clinicians, institutions, or health technologies explain probability, severity, uncertainty, benefit, and harm to patients facing medical decisions. Literature distinguishes between numeric risk communication, such as percentages and absolute frequencies, and verbal risk communication, such as "rare," "likely," or "high risk" [4], [5], [6]. Numeric forms may improve precision, but they can

overload patients when unsupported by context; verbal forms may feel natural, but they can be interpreted inconsistently across patients, cultures, and situations. Research on cardiovascular disease, diabetes, allergy, and oncology confirms that risk communication is effective only when probabilistic meaning is linked to patient-relevant consequences [28], [29], [30].

The main dimensions of risk communication include probability format, risk comparison, severity framing, benefit–harm balance, visual support, and explanation of uncertainty. Best-practice literature recommends absolute risk, consistent denominators, icon arrays, plain frequencies, and avoidance of persuasive framing that steers patients without deliberation [4], [31], [32]. However, clinical encounters do not always follow decision-aid logic. Risk is often embedded in reassurance, warning, recommendation, or consent routines, making it less transparent as a calculable probability [33], [34]. For Indonesian clinical discourse, this means analysis must examine not only what risk information appears, but how it is linguistically translated into everyday reasoning.

2.3. Uncertainty communication

Uncertainty communication concerns how clinicians disclose the limits of diagnosis, prognosis, evidence, treatment response, or future outcomes. It differs from risk communication because risk can be probabilistically estimated, whereas uncertainty often concerns indeterminacy, incomplete knowledge, or competing interpretations [9], [7], [35]. Research shows that clinicians frequently manage uncertainty through hedging, conditional statements, staged explanations, or delayed disclosure, partly to protect patients from anxiety and partly to preserve professional authority [8], [36]. In shared decision-making, however, uncertainty should not be hidden; it must be made discussable so patients can weigh options without assuming false certainty.

Shared decision-making provides the broader interactional frame for linking health literacy, risk communication, and uncertainty. It includes option talk, risk explanation, preference elicitation, deliberation, and agreement on next steps [16], [18], [17]. Its indicators include whether alternatives are named, whether benefits and harms are balanced, whether patient values are invited, and whether decisions remain open rather than closed by authority [37], [38], [39]. Barriers intensify when language discordance, digital mediation, AI translation, or clinical decision support systems reshape communication without ensuring accountability [19], [40], [41]. This study therefore theorises patient decision-making as a communicative achievement produced through everyday translations of risk and uncertainty.

3. METHOD

This study uses patient-facing Indonesian health communication documents as its unit of analysis. Each document is treated as one communicative item in which clinical risk, uncertainty, or decision-relevant information is translated for public or patient understanding. This unit is appropriate because health literacy is not examined as a private cognitive trait, but as a linguistic and institutional condition shaped by wording, format, source authority, and decision context [1], [2]. This corpus contains 25 verified public items from official health institutions, hospital channels, regulatory repositories, and national patient education platforms, covering clinical explanation, informed consent, safety, medication, chronic disease, cancer, mental health, genomics, and risk governance.

Table 1. Dataset composition

Code	Data Type	Source	Location	Period	Number	Characteristics	Status
TRL-PRI-001	Primary	Ditjen Kesehatan Lanjutan, Kemenkes RI	Jakarta / Indonesia	2024	1	Informed consent, prognosis, risk, alternatives, simple language	Unique
TRL-PRI-002–016	Primary	Ayo Sehat, Kemenkes RI	National	2022–2026 / n.d.	15	Patient-facing articles, FAQ, topic pages, and video transcript	Unique
TRL-SEC-001–002	Secondary	Ditjen Kesehatan Lanjutan, Kemenkes RI	National	2022–2024	2	Patient safety and effective clinical communication	Unique
TRL-SEC-003–004	Secondary	RSUD Sleman; RSA UGM	Yogyakarta	2024–2025	2	Hospital-level patient education on hypertension and cardiovascular risk	Unique
TRL-CTX-001	Context	Repository Kemenkes RI	Indonesia	2021	1	Risk communication guideline for health crises	Unique
TRL-CTX-002–005	Context	BPK, JDIH Kemenkes, Jakarta regulation repository	Indonesia	2008–2026	4	Health regulation, hospital governance, Puskesmas, informed consent	Unique
Total	Mixed corpus	Official public sources	Indonesia	2008–2026	25	Primary, secondary, and contextual documents	Deduplicated

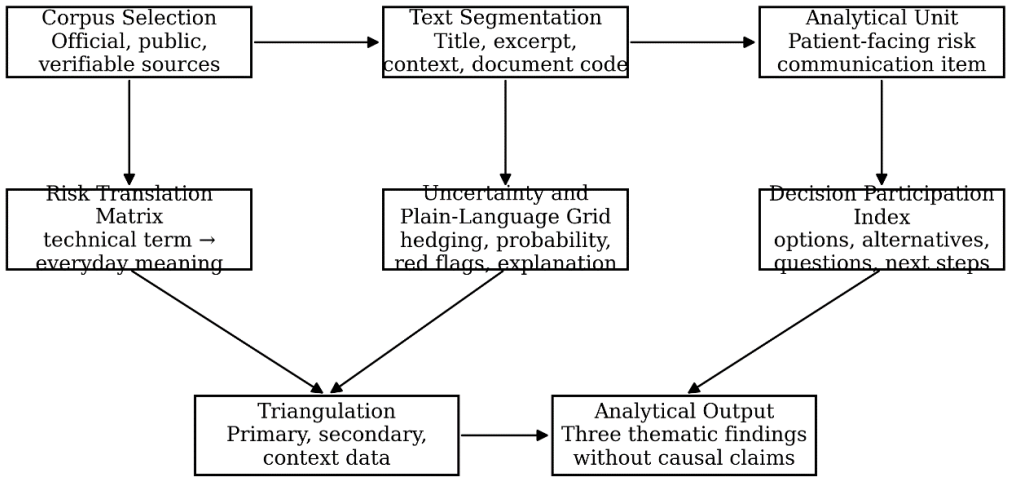
This study applies qualitative discourse-pragmatic design supported by structured corpus coding. This design is suitable because this study investigates how risk is made understandable through language rather than measuring patient outcomes experimentally. The analytical focus is therefore interpretive, not causal. It

examines lexical choices, reformulations, probability expressions, uncertainty markers, warning formats, and decision openings across patient-facing discourse. This approach follows recent health communication research that treats shared decision-making as an interactional process involving option talk, risk explanation, preference elicitation, and deliberation [16], [17], [18]. It also aligns with risk communication scholarship stressing clarity, probability format, and patient-centred framing [4], [6].

Information sources were selected from public, official, and verifiable channels to ensure transparency and replicability. Primary materials include patient education pages, frequently asked questions, consent-related explanation, and video transcript material issued by Indonesian health authorities. Secondary materials include hospital education pages and clinical communication resources that contextualise patient safety and professional explanation. Contextual materials include regulation records and health communication guidelines that frame institutional obligations around consent, patient participation, and risk explanation. This source hierarchy prevents clinical claims from being detached from institutional setting. It also recognises that decision-making language is shaped not only by doctor–patient talk, but also by written guidance, public health communication, and legal-administrative expectations.

Data were collected through targeted public-source searching using Indonesian and English keywords related to risiko klinis, ketidakpastian, persetujuan tindakan kedokteran, efek samping, komplikasi, pilihan pengobatan, literasi kesehatan, komunikasi dokter-pasien, and shared decision-making. The period prioritised 2021–2026, while older consent regulation was retained as contextual legal material because of its direct relevance to informed consent discourse. Each item was recorded with document code, title, date, institution, source channel, URL, region, language, format, context, excerpt, and deduplication status. For visual or video material, additional fields captured image description, actors, symbols, colour, layout, logo position, frame, timestamp, transcript, and screenshot reference.

Data analysis proceeded in five stages. First, each document was segmented into patient-facing risk communication units. Second, technical expressions were compared with their everyday-language reformulations. Third, uncertainty markers were coded, including probability terms, hedges, conditional explanations, warnings, and referral cues, following uncertainty communication literature [7], [9], [8]. Fourth, decision participation indicators were coded, including option presentation, benefit–harm balance, alternatives, question invitations, and next steps. Fifth, primary, secondary, and contextual data were triangulated to produce three analytical themes: risk translation, uncertainty management, and patient decision participation.



Note. Arrows indicate analytical sequence from corpus construction to interpretive output.

Figure 1. Operational analysis matrix

4. RESULTS

4.1. Everyday risk translation in patient-facing clinical communication

Everyday risk translation in this corpus is dominated by chronic-risk communication rather than acute consent, emergency warning, or probabilistic explanation. This pattern matters because patient-facing Indonesian health materials appear to prioritise risks that can be narrated as continuous, manageable, and behaviourally adjustable. Chronic-risk translation accounts for 7 of 25 items, or 28%, followed by treatment-

side-effect framing and regulatory-risk framing, each with 3 items or 12%. The distribution indicates that risk is most often made understandable by linking disease to control, prevention, lifestyle, monitoring, and future complications. This orientation corresponds with health literacy literature that emphasises actionability and practical meaning rather than information volume alone [1], [2], [23].

Table 2. Risk translation patterns across the corpus

Main Category	Subcategory	Indicator	Frequency	Percentage	Data Variation	Example / Short Quote	Data Codes
Chronic-risk translation	Long-term disease risk	Risk translated through control, lifestyle, organ damage, future complications, or repeated monitoring	7	28%	Primary: 4; Secondary: 2; Context: 1	"Pengobatan bertujuan untuk mengontrol kadar gula darah"; "Hipertensi sering disebut juga sebagai The Silent Killer."	TRL-PRI-002, TRL-PRI-003, TRL-PRI-012, TRL-PRI-013, TRL-SEC-003, TRL-SEC-004, TRL-CTX-001
Treatment-side-effect framing	Therapy burden and warning signs	Risk translated through side effects, bodily consequences, emergency cues, or caregiver action	3	12%	Primary: 3; Secondary: 0; Context: 0	"Efek samping umum dari pengobatan kanker meliputi kelelahan"; "Jika anak mengalami gejala di bawah ini, segera bawa ke IGD."	TRL-PRI-005, TRL-PRI-006, TRL-PRI-009
Regulatory-risk frame	Institutional and legal risk governance	Risk translated as duty, standard, documentation, service quality, or legal-administrative requirement	3	12%	Primary: 0; Secondary: 0; Context: 3	"Peraturan pelaksanaan UU Nomor 17 Tahun 2023"; "Peningkatan mutu pelayanan kesehatan."	TRL-CTX-002, TRL-CTX-003, TRL-CTX-004
Consent-risk package	Pre-action explanation	Risk appears with diagnosis, procedure, benefit, complication, prognosis, alternative, and patient permission	2	8%	Primary: 1; Secondary: 0; Context: 1	"Bahasa informasi harus jelas, sederhana, mudah dimengerti"; "Persetujuan tindakan kedokteran."	TRL-PRI-001, TRL-CTX-005
Adherence-risk framing	Medication use and misuse	Risk translated through compliance, prescription boundaries, and consequences of unsupervised use	2	8%	Primary: 2; Secondary: 0; Context: 0	"Hindari membeli antibiotik tanpa resep dokter"; "Habiskan antibiotik sesuai petunjuk dokter."	TRL-PRI-010, TRL-PRI-011
Help-seeking risk framing	Professional consultation and self-diagnosis	Risk translated as a reason to seek help, avoid self-diagnosis, or consult professionals	2	8%	Primary: 2; Secondary: 0; Context: 0	"Mintalah bantuan tenaga profesional"; "Hindari mendiagnosis diri sendiri."	TRL-PRI-014, TRL-PRI-015
System-safety communication	Structured clinical communication	Risk translated through safety procedure, communication protocol, and interprofessional coordination	2	8%	Primary: 0; Secondary: 2; Context: 0	"Meningkatkan Komunikasi Yang Efektif"; "SBAR adalah alat komunikasi terstruktur."	TRL-SEC-001, TRL-SEC-002
Normal-vs-danger distinction	Boundary between expected and alarming reaction	Risk translated by separating ordinary side effects from potentially serious signs	1	4%	Primary: 1; Secondary: 0; Context: 0	"Efek samping ini masih terbilang normal."	TRL-PRI-004
Disease-complication framing	Infection-related complication	Risk translated through treatment timing, exposure context, and complication warning	1	4%	Primary: 1; Secondary: 0; Context: 0	"Lama pengobatannya tergantung dari kapan dan lokasi seseorang terinfeksi."	TRL-PRI-007
Option-and-side-effect framing	Treatment choice and patient profile	Risk translated through alternatives, patient suitability, and monitoring of side effects	1	4%	Primary: 1; Secondary: 0; Context: 0	"Pilihan obat harus disesuaikan dengan profil pasien."	TRL-PRI-008
Probabilistic-risk literacy	Probability as patient explanation	Risk translated through probability, prediction, and future-oriented interpretation	1	4%	Primary: 1; Secondary: 0; Context: 0	"Genomik lebih tepat dipahami sebagai peta probabilitas."	TRL-PRI-016

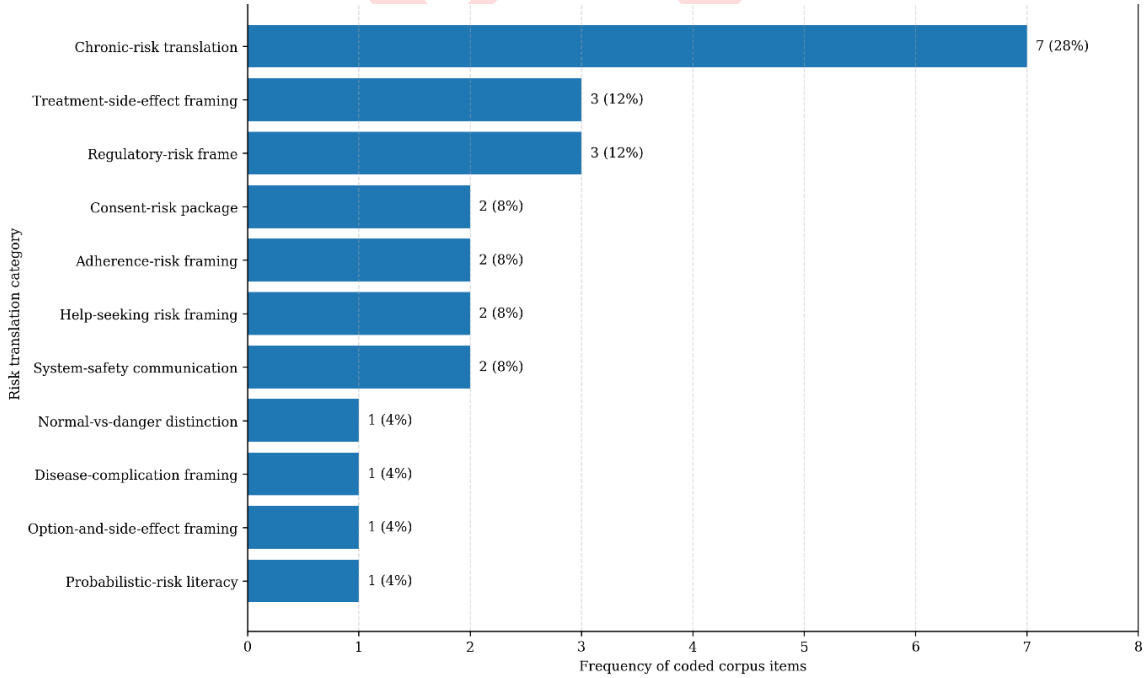


Figure 2. Distribution of everyday risk translation patterns

The dominant pattern is visible in texts that convert clinical risk into familiar consequences and manageable action. Diabetes is framed through control, as in "Pengobatan bertujuan untuk mengontrol kadar

gula darah," while hypertension is translated through recognisable danger metaphors such as "The Silent Killer." These formulations do not present risk primarily as abstract probability; they make risk legible through bodily consequence, daily discipline, and preventable deterioration. Side-effect communication follows a similar practical logic. Cancer therapy texts foreground fatigue, emergency symptoms, and caregiver response, while antibiotic texts use directive safety boundaries such as "Hindari membeli antibiotik tanpa resep dokter." The corpus therefore shows a pragmatic preference for risk as a lived problem requiring action, not as a detached numerical estimate.

These patterns suggest that patient decision-making is shaped by how risk is linguistically converted into ordinary judgement. When risk is expressed through control, warning signs, alternatives, and help-seeking cues, patients are positioned as practical actors who must monitor symptoms, follow instructions, ask for support, or recognise danger. Yet this practical orientation also narrows what counts as participation: decision-making often becomes adherence, safety compliance, or timely consultation rather than deliberation over alternatives. This tension reflects shared decision-making debates showing that accessible language does not automatically produce deliberative equality [16], [17], [32]. This study therefore treats risk translation as both an enabling literacy practice and a mechanism through which clinical authority remains embedded in everyday language.

4.2. Managing uncertainty through plain-language boundaries

Uncertainty in this corpus is most often managed by converting indeterminate medical futures into conditional, observable, and action-oriented explanations. Across the same 25 coded items, risk-factor conditionality appears in 9 items, or 36%, making it the dominant pattern. Explicit uncertainty or conditionality follows with 6 items, or 24%, while institutional uncertainty control and safety-boundary communication each appear in 3 items, or 12%. Risk-before-action disclosure and communication-process control each appear in 2 items, or 8%. The distribution shows that uncertainty is rarely left as open indeterminacy. It is translated into factors, thresholds, professional advice, safety procedures, or consent requirements that make uncertainty more manageable for patients.

Table 3. Uncertainty management patterns across the corpus

Main Category	Subcategory	Indicator	Frequency	Percentage	Data Variation	Example / Short Quote	Data Codes
Risk-factor conditionality	Risk depends on symptoms, behaviour, control, and medical consultation	Uncertainty is explained through modifiable or observable risk factors rather than abstract probability	9	36%	Primary: 6; Secondary: 2; Context: 1	"Hipertensi tidak dapat disembuhkan secara total"; "Jika tidak diobati, OSA juga meningkatkan risiko"; "Mintalah bantuan tenaga profesional."	TRL-PRI-002, TRL-PRI-003, TRL-PRI-012, TRL-PRI-013, TRL-PRI-014, TRL-PRI-015, TRL-SEC-003, TRL-SEC-004, TRL-CTX-001
Explicit uncertainty or conditionality	Prognosis, treatment response, and clinical suitability	Uncertainty is marked through conditional phrasing, patient profile, possible spread, treatment variability, or probability language	6	24%	Primary: 6; Secondary: 0; Context: 0	"Lama pengobatannya tergantung dari kapan dan lokasi seseorang terinfeksi"; "Pilihan obat harus disesuaikan dengan profil pasien"; "Genomik lebih tepat dipahami sebagai peta probabilitas."	TRL-PRI-005, TRL-PRI-006, TRL-PRI-007, TRL-PRI-008, TRL-PRI-009, TRL-PRI-016
Institutional uncertainty control	Standards, duties, documentation, and regulation	Uncertainty is handled through formal rules, service obligations, documentation, and institutional accountability	3	12%	Primary: 0; Secondary: 0; Context: 3	"Peraturan pelaksanaan UU Nomor 17 Tahun 2023"; "Peningkatan mutu pelayanan kesehatan."	TRL-CTX-002, TRL-CTX-003, TRL-CTX-004
Safety-boundary communication	Normal reaction, unsafe practice, and prescription boundary	Uncertainty is reduced by separating acceptable responses from danger signs or unsafe conduct	3	12%	Primary: 3; Secondary: 0; Context: 0	"Efek samping ini masih terbilang normal"; "Hindari membeli antibiotik tanpa resep dokter"; "Habiskan antibiotik sesuai petunjuk dokter."	TRL-PRI-004, TRL-PRI-010, TRL-PRI-011
Risk-before-action disclosure	Consent and pre-procedure explanation	Uncertainty is managed by requiring explanation before action, especially around risk, complication, prognosis, and alternatives	2	8%	Primary: 1; Context: 1; Secondary: 0	"Bahasa informasi harus jelas, sederhana, mudah dimengerti"; "Persetujuan tindakan kedokteran."	TRL-PRI-001, TRL-CTX-005
Communication-process control	Structured communication and safety procedure	Uncertainty is managed through clinical communication protocols and interprofessional clarity	2	8%	Primary: 0; Secondary: 2; Context: 0	"Meningkatkan Komunikasi Yang Efektif"; "SBAR adalah alat komunikasi terstruktur."	TRL-SEC-001, TRL-SEC-002

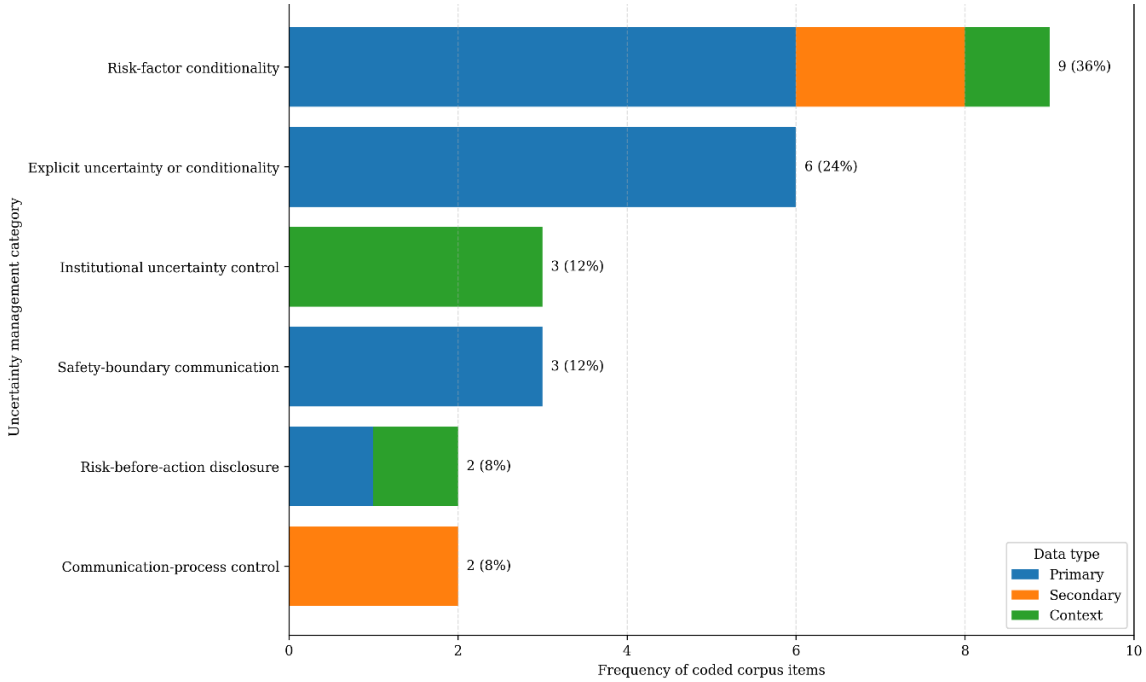


Figure 3. Uncertainty management across corpus data types

The strongest pattern appears in documents where uncertainty is explained through conditional everyday reasoning. Hypertension is described as something that "tidak dapat disembuhkan secara total," shifting uncertainty from cure to long-term control. Malaria treatment is framed as dependent on "kapan dan lokasi seseorang terinfeksi," while epilepsy medication is said to require adjustment to "profil pasien." These examples show that uncertainty is not primarily communicated through formal probability. Instead, it appears through dependence, suitability, warning, and professional guidance. Safety-boundary items use sharper distinctions: KIPI explanation separates normal side effects from concern, while antibiotic texts warn against buying medication without prescription. Such phrasing makes uncertainty practically navigable, even when it does not fully open deliberation.

This pattern strengthens the view that health literacy operates as an interactional and institutional achievement rather than a patient-only competence. The corpus supports arguments in uncertainty communication research that patients need explicit acknowledgement of limits, conditionality, and next steps, not vague reassurance or technical opacity [7], [9], [8]. At the same time, these documents show a tension within shared decision-making. Plain-language uncertainty often helps patients know what to monitor or avoid, but it can also frame participation as compliance with expert-defined boundaries. This aligns with recent debates that accessible communication must be evaluated not only by clarity, but also by whether it expands patient agency, preference expression, and meaningful choice [16], [32].

4.3. Patient decision-making as guided participation

Patient decision-making in this corpus is most frequently organised as guided participation rather than open deliberation among equivalent choices. Across the same 25 coded items used in the previous analyses, self-management and adherence guidance appears in 7 items, or 28%, making it the largest category. Consent-based decision opening, help-seeking cues, and safety-protocol communication each appear in 4 items, or 16%. Clinical suitability and option framing appears in 3 items, or 12%, while information provision with limited deliberation also appears in 3 items, or 12%. This distribution indicates that patient participation is made visible, but it is usually channelled through recommended conduct, safety thresholds, formal consent, and professional escalation rather than sustained preference negotiation.

Table 4. Decision participation patterns across the corpus

Main Category	Subcategory	Indicator	Frequency	Percentage	Data Variation	Example / Short Quote	Data Codes
Self-management and adherence guidance	Patient action after risk explanation	Participation is framed as controlling disease, following treatment, monitoring conditions, and avoiding unsafe practice	7	28%	Primary: 6; Secondary: 1; Context: 0	"Pengobatan bertujuan untuk mengontrol kadar gula darah"; "Habiskan antibiotik sesuai petunjuk dokter."	TRL-PRI-002, TRL-PRI-003, TRL-PRI-010, TRL-PRI-011, TRL-PRI-012, TRL-PRI-013,

							TRL-SEC-003
Consent-based decision opening	Agreement before clinical action	Participation is enabled through explanation of diagnosis, procedure, risk, complication, prognosis, alternative, and permission	4	16%	Primary: 2; Secondary: 0; Context: 2	"Bahasa informasi harus jelas, sederhana, mudah dimengerti"; "Persetujuan tindakan kedokteran."	TRL-PRI-001, TRL-PRI-008, TRL-CTX-002, TRL-CTX-005
Help-seeking and escalation cues	When patients should seek professional help	Participation is framed through recognising danger signs, consulting professionals, or avoiding self-diagnosis	4	16%	Primary: 4; Secondary: 0; Context: 0	"Segera bawa ke IGD"; "Mintalah bantuan tenaga profesional"; "Hindari mendiagnosis diri sendiri."	TRL-PRI-004, TRL-PRI-009, TRL-PRI-014, TRL-PRI-015
Safety and communication protocol	Institutional support for patient safety	Participation is mediated through structured communication, service standards, and patient-safety procedure	4	16%	Primary: 0; Secondary: 2; Context: 2	"Meningkatkan Komunikasi Yang Efektif"; "SBAR adalah alat komunikasi terstruktur."	TRL-SEC-001, TRL-SEC-002, TRL-CTX-003, TRL-CTX-004
Clinical suitability and option framing	Treatment adjusted to patient condition	Participation is linked to profile, side effects, treatment suitability, or possible alternatives	3	12%	Primary: 3; Secondary: 0; Context: 0	"Pilihan obat harus disesuaikan dengan profil pasien"; "Efek samping umum dari pengobatan kanker."	TRL-PRI-005, TRL-PRI-006, TRL-PRI-016
Information provision with limited deliberation	Explanation without explicit choice expansion	Participation remains informational because texts explain risk but do not clearly invite preference, questioning, or comparison of options	3	12%	Primary: 1; Secondary: 1; Context: 1	"Lama pengobatannya tergantung"; "komunikasi risiko kesehatan."	TRL-PRI-007, TRL-SEC-004, TRL-CTX-001

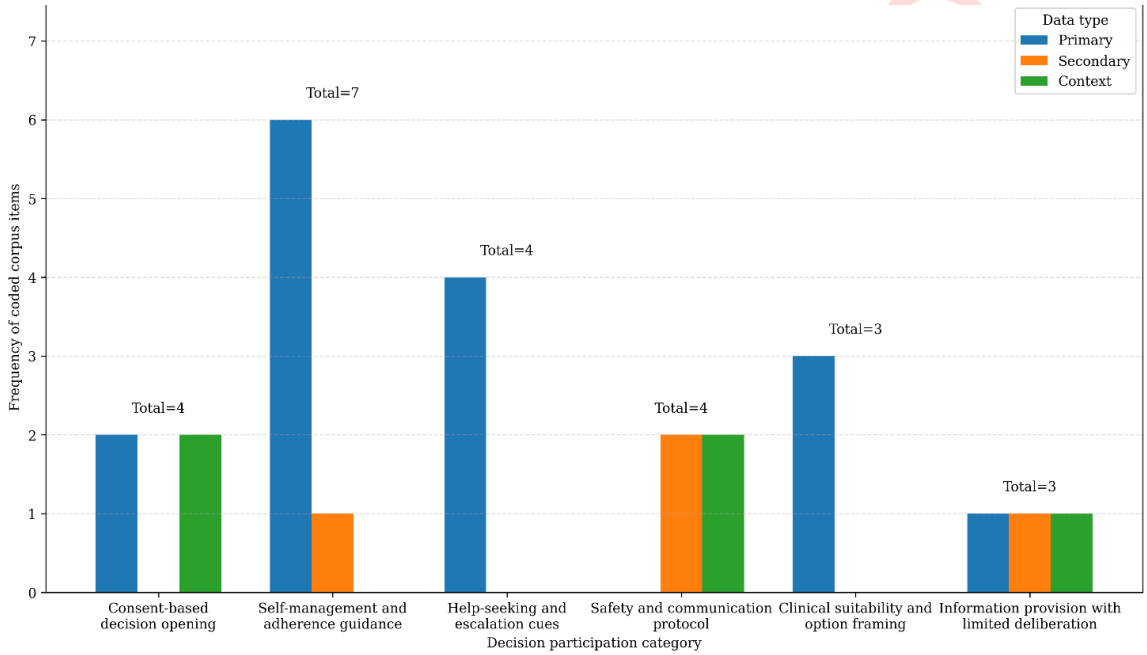


Figure 4. Decision participation patterns across corpus data types

The dominant pattern can be seen in formulations that translate decision-making into practical responsibility. Diabetes materials state that treatment aims to "mengontrol kadar gula darah," while antibiotic guidance instructs patients to "habiskan antibiotik sesuai petunjuk dokter." These examples position patients as active, but their activity is primarily adherence-oriented. Help-seeking items similarly define participation through recognising danger and contacting professionals, as in "segera bawa ke IGD" or "mintalah bantuan tenaga profesional." Consent-related texts provide a stronger decision-opening structure by requiring risk, complication, prognosis, and alternatives to be explained in "jelas, sederhana, mudah dimengerti" language. However, only a smaller part of the corpus explicitly foregrounds patient preference, comparison of options, or negotiated choice.

This pattern refines the relationship between health literacy and shared decision-making. Plain language can make medical risk understandable, but understandability alone does not guarantee deliberative participation. The corpus shows that accessible Indonesian health communication often equips patients to comply, monitor, and seek help, while less frequently inviting them to compare options or articulate values. This finding is consistent with shared decision-making literature that distinguishes information delivery from genuine option talk, preference elicitation, and deliberation [16], [17], [18]. For this study, patient decision-making is therefore best understood as a graded communicative condition: it expands when risk explanation includes alternatives and questions, and contracts when clarity is used mainly to secure adherence.

5. DISCUSSION

The prominence of chronic-risk translation indicates that Indonesian patient-facing health communication functions primarily as a technology of everyday manageability. Risk is not presented mainly

as statistical abstraction, but as something patients can recognise through control, prevention, routine monitoring, and future complication. This is useful because it makes clinical information actionable for publics who may not be familiar with probabilistic reasoning. Such orientation supports health literacy scholarship arguing that useful information must be understandable, applicable, and embedded in daily decision contexts [1], [2], [23]. Yet this same function has a possible dysfunction: when risk is overwhelmingly translated into lifestyle control and adherence, patient understanding may become narrower than clinical deliberation. Compared with Bonner et al. [4] and Peters et al. [6], who stress transparent probability formats, this corpus shows stronger reliance on practical consequences than numeric risk. Risk becomes graspable, but not always fully comparable.

This pattern emerges because Indonesian patient-facing communication is structured by a public health logic that prioritises prevention, compliance, and early recognition over deliberative choice. Chronic illness materials must reach broad audiences across diverse literacy, linguistic, and clinical backgrounds; therefore, they favour familiar wording, bodily consequences, and behavioural instruction. This structure corresponds with Schillinger et al. [21], who argue that clinicians adapt language to patients' literacy levels, but it also complicates shared decision-making when adaptation becomes simplification without negotiated preference. In this corpus, everyday phrasing works as a bridge between expert discourse and public comprehension, yet it may also preserve professional authority by defining what counts as reasonable patient action. Hashim's [5] review of verbal probability terms is relevant here: natural language can be more accessible than numbers, but less precise. The underlying structure is therefore double-edged: accessibility expands comprehension while reducing room for probabilistic comparison.

The management of uncertainty through conditional and plain-language boundaries has significant implications for patient safety and trust. Uncertainty is made less intimidating when it is linked to symptoms, timing, patient profile, warning signs, or professional referral. This practice aligns with Dahm et al. [7] and Medendorp et al. [9], who show that patients benefit when uncertainty is acknowledged rather than hidden behind confident clinical authority. In functional terms, conditional language allows patients to understand that prognosis, side effects, or treatment response may vary without interpreting variation as professional incompetence. However, a dysfunction appears when uncertainty is converted too quickly into procedural instruction. If patients are told only what to watch, avoid, or report, they may receive practical guidance but limited explanation of why uncertainty exists. This differs from Lian et al. [35], who emphasise that uncertainty can become a shared interpretive space. Here, it often becomes a managed boundary.

The structure behind this uncertainty pattern is institutional as much as linguistic. Public health materials and consent-related documents are designed to reduce ambiguity, prevent unsafe action, and guide patients toward authorised care pathways. That design explains why uncertainty appears through thresholds, warnings, and referral cues rather than open-ended discussion. Khazen et al. [8] show that clinicians often distribute uncertainty across diagnosis, testing, and follow-up, while McMahon et al. [36] note that professional comfort with uncertainty shapes how much ambiguity is disclosed. This corpus reflects a similar structure, but in written and public-facing form: uncertainty is disclosed only insofar as it can be attached to action. This pattern supports health communication goals, yet it can weaken shared decision-making when uncertainty is not connected to patient values, trade-offs, or alternative pathways. Uncertainty is therefore not absent; it is institutionally disciplined into manageable instructions that privilege safety and professional escalation.

The finding that patient decision-making is organised as guided participation rather than open deliberation has important implications for how health literacy should be evaluated. Patient-facing texts clearly position patients as actors: they must control blood sugar, complete antibiotics, seek emergency care, avoid self-diagnosis, and follow professional advice. This supports an action-oriented model of literacy and resonates with Fitzpatrick's [22] view that digital and public health communication can improve outcomes by making information usable. Yet shared decision-making requires more than usable instruction. Noordman et al. [16], Himmelfarb et al. [17], and Tang et al. [18] define decision-making as option talk, preference elicitation, and deliberation, not merely compliance with expert guidance. Compared with this standard, this corpus reveals a restricted form of participation: patients are invited to act responsibly, but less often invited to compare treatments, weigh risks, or articulate preferences. Clarity therefore functions, but deliberation remains uneven.

This guided participation pattern can be explained by structural asymmetry in clinical authority, document genre, and public communication purpose. Patient education materials are rarely designed as full decision aids; they are meant to inform broad audiences, standardise messages, and reduce unsafe behaviour. Consequently, they privilege instruction over negotiation. This helps explain why consent-related documents offer stronger decision-opening language, while disease education and medication guidance lean toward adherence and escalation cues. The pattern is consistent with Richter et al. [3], [32], who caution that decision aids and option talk can exclude people with limited health literacy when probability, alternatives,

and preferences are not communicated inclusively. Indonesian medical-linguistic studies on informed consent, directive speech acts, multilingual barriers, and telemedicine asymmetry further suggest that language accessibility and authority are deeply intertwined [10], [11], [12], [14]. This study therefore positions patient decision-making as graded participation shaped by institutional voice, not as simple empowerment.

6. CONCLUSION

This study shows that clinical risk in Indonesian patient-facing communication is most often translated as everyday manageability rather than abstract probability. Risk becomes intelligible through control, warning signs, adherence, professional escalation, and consent-related explanation, while uncertainty is disciplined into conditional boundaries that patients can recognise and act upon. This central lesson renews health literacy research by shifting attention from patient deficits to communicative conditions that organise understanding and participation. Its contribution lies in integrating discourse-pragmatic analysis, risk translation, uncertainty coding, and decision-participation indicators within one consistent corpus, thereby refining questions about how accessible language enables, limits, or redirects clinical agency.

This study is limited by its reliance on public documents, patient education materials, institutional texts, and consent-related discourse rather than naturally occurring consultation recordings or patient interviews. Consequently, it cannot determine how patients actually interpret risk language, negotiate uncertainty, or make decisions during live encounters. Future research should incorporate approved clinical transcripts, multilingual interactional data, patient recall interviews, and hospital settings across urban and rural Indonesia. Further studies may also test how numeric probabilities, visual aids, AI-generated simplifications, and teach-back strategies alter patient comprehension and participation. Such work would extend this study from textual analysis toward interactional and evaluative evidence.

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Wulan Kurnia Sari: conceptualization, methodology, formal analysis, writing – original draft, writing – review and editing.

CONFLICT OF INTEREST STATEMENT

Author states no conflict of interest.

AI USE DECLARATION

The author used artificial intelligence tools to assist with the generation of illustrative figures and with the formatting and layout of this manuscript. AI was not used to generate the substantive content, conceptualization, data, analysis, or conclusions of the research, all of which remain the sole responsibility of the author.

INFORMED CONSENT

Not applicable – this study did not involve direct human participants. Data consisted solely of publicly accessible patient-facing health materials, consent-related texts, hospital education documents, and regulatory-context sources.

ETHICAL APPROVAL

This research did not involve human or animal subjects; it analyzed publicly accessible patient-facing health materials, consent-related texts, hospital education documents, and regulatory-context sources, and therefore no institutional review board approval was required. Where research does involve human subjects, the author affirms that such research would be conducted in full compliance with all relevant national regulations and institutional policies, in accordance with the tenets of the Declaration of Helsinki, and would be approved by the author's institutional review board or equivalent committee.

DATA AVAILABILITY

The corpus of publicly accessible patient-facing health materials, consent-related texts, hospital education documents, and regulatory-context sources analyzed in this study are available from the corresponding author upon reasonable request.

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BIOGRAPHY OF AUTHOR



Wulan Kurnia Sari is affiliated with Universitas Sriwijaya Palembang, Sumatera Selatan, Indonesia, where her work engages medical linguistics and discourse-pragmatic analysis within health communication and clinical literacy scholarship. Her current research examines how Indonesian clinical risk, uncertainty, and treatment-relevant information are translated into everyday language to support patient decision-making. She can be contacted at email: 10013682631009@student.unsri.ac.id.