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The Polysemy of Resilience Across Physical, Medical, and Everyday English Discourse and its Implications for Patient-Centered Health Communication

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Abstract

This study examines how the polysemous senses of "resilience" are distributed across registers in present-day American English and what that distribution implies for patient-centered health communication. Although the term is frequently invoked in American clinical practice, the behavior of its senses across discourse types remains underexplored, posing a risk of semantic misalignment between clinician intent and patient comprehension. A lexicographic reconstruction, in which three present-day dictionary senses were operationalized through diagnostic collocate cues, was combined with a corpus analysis of 17,243 concordance instances from the Corpus of Contemporary American English. Four sub-corpora were built, three sense-specific sets from the Health and Medicine register and a daily-usage benchmark, and analyzed in AntConc and R using Log-Likelihood and chi-square statistics. The psychological and systemic senses predominate, the former in medical discourse and the latter in academic and institutional discourse while the original physical sense accounts for 1.5 percent of resolved instances. A chi-square test of independence supported the collocational separation of the three senses, Cramér's V = .86, and 53.6 percent of everyday instances remained contextually underspecified, reflecting a stylistic broadening into a generalized rhetoric of virtue. Clinicians can therefore frame "resilience" with process-oriented collocates such as "build" or "coping," though corpus distributions cannot be read directly as clinical comprehension and require experimental confirmation.

Keywords: polysemy, resilience, collocation, sense disambiguation, health communication

1 Introduction

1.1 Statement of Problem

First attested in the 1620s in the sense "act of rebounding or springing back," often of immaterial things, and acquiring its physical-science sense of elasticity by 1824 (Online Etymology Dictionary, n.d.), "resilience" has since migrated into psychology, medicine, ecology, public health, urban planning, and ordinary conversational English, where it now also designates the human capacity to recover from adversity, illness, trauma, and prolonged stress. The lexeme therefore presents a distinctive case of polysemous expansion across markedly different domains of usage. In clinical communication, "resilience" is often used to encourage a more adaptive view of illness, inviting patients to see themselves as capable of adjusting to the challenges of their condition. Gurumurthy et al. (2025) note that the language clinicians choose can either inflame patients' psychological challenges or open space for those challenges to be voiced and understood, and that clinician language and behaviour become salient memories shaping how patients perceive their health. The therapeutic value of the word, however, depends partly on which sense the patient associates with it. Similarly, Southwick et al. (2014) observe that resilience is defined differently for individuals, families, organizations, societies, and cultures, and stress the importance of specifying whether it is being treated as a trait, a process, or an outcome.

When a clinician tells a patient with a recent cancer diagnosis that "building resilience" may support recovery, a patient who construes the word in the older mechanical sense may understand it as a fixed biological endowment, which may reduce the active behavioral engagement the clinician meant to promote. Patients exposed to contemporary psychological discourse, by contrast, may understand resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress" (American Psychological Association, 2014, para. 4). While the clinical importance of "resilience" is well recognised, the word itself has received far less linguistic attention. What remains to be established empirically, through corpus based methods that examine large samples of authentic American English usage, is how these accumulated senses are distributed across health discourse, general everyday discourse, and academic medical writing in present day American English, and which sense most reliably surfaces when patients encounter the word in real clinical and public health communication.

Research Questions

1. What are the present-day senses of "resilience" recorded in the Cambridge Dictionary (CD) and the Oxford Learner's Dictionary (OLD), and how did each sense develop from the Latin verb resilire?
2. How does the distribution of senses in medical discourse differ from the distribution found in general and academic English in present-day American usage?
3. How can the observed sense distributions of "resilience" inform patient-centered health communication?

1.2 Polysemy, Sense Boundaries, and the Structure of Multiple Meaning

Burridge and Stebbins (2019) state that polysemy refers to a situation where one lexical item has several related meanings. The physical or material, psychological, and systemic senses of "resilience" all originate from the same Latin etymon "resilire," yet each developed through the kinds of principled semantic extension described by Bond et al. (2024). Geeraerts (2010) argues that polysemous meanings form a continuum rather than separate categories, so that some uses clearly belong to one sense while others fall between two. Li (2024) likewise

supposes that the senses of polysemous words tend to occupy a continuous semantic space rather than sharply separated classes, and Haber and Poesio (2024) treat ambiguous or unresolved cases, from a computational perspective, as a normal feature of polysemy because the boundaries between senses naturally overlap. This carries a methodological consequence for the present study: some concordance lines will resist classification because the surrounding context does not supply enough information, and such cases are better understood as a product of gradience than as a weakness of the collocational evidence or of the classification method.

1.3 Metaphorical Extension and Stylistic Broadening

Lakoff and Johnson (1980/2003) argue that abstract concepts are largely structured through metaphorical mappings from concrete, embodied experience, and Lakoff (1993) describes this process as metaphorical mapping, in which a concrete source domain is projected onto an abstract target domain. For "resilience," the physical property of elasticity is the source domain and psychological recovery the target. The original physical meaning later expanded to include adaptation to and recovery from adversity (Online Etymology Dictionary, n.d.; Cambridge Dictionary, n.d.), a shift that instantiates the cross-domain mapping described by Lakoff (1993), a process Burridge and Stebbins (2019) describe as semantic broadening. Yu and Xu (2025) describe this expansion as semantic chaining, in which new meanings link step by step to the closest existing meanings in semantic space, and the progression from concrete rebound to metaphorical personal recovery is consistent with that account. Metaphor captures only one aspect of this development. Traugott and Dasher (2002), through the Invited Inferencing Theory of Semantic Change, show how a word comes to be associated with a context in which it repeatedly occurs, while Sinclair's (1991) idiom principle and Louw's (1993) notion of semantic prosody both emphasise that meaning is shaped by the company a word keeps, so that words regularly occurring in favourable contexts may acquire a positive evaluative colouring even when those contexts are absent. Stubbs (2001) notes that this tendency remains stable as it develops from repeated patterns of use rather than from individual collocates.

1.4 Semantic Dominance, Frequency, and the Decline of the Original Sense

Frazier and Rayner (1990) demonstrate that readers commit to the dominant sense of a polysemous word more quickly in neutral contexts, and Foraker and Murphy (2012) confirm through eye-tracking that the dominant sense is processed more easily when it is also the more frequent sense in everyday language. Frequency, however, is not stable over time: Feltgen et al. (2017), in a study of around 400 cases of semantic expansion in French, found that new meanings usually develop gradually rather than at once, and Karjus et al. (2020) argue that changes in word frequency are closely related to changes in the conceptual domains associated with a word. Together these accounts explain why the original physical sense of "resilience" would recede as its psychological and systemic senses gained prominence.

1.5 Collocation as the Primary Evidence Base for Sense Disambiguation

Firth's (1957) well-known idea that "you shall know a word by the company it keeps!" (p. 11) motivates the use of collocation in sense disambiguation, since repeated lexical patterns often indicate the intended sense. Stubbs (1995) supports this view in his analysis of the word "cause," finding that the lemma CAUSE occurs predominantly in unpleasant collocations across different corpora, a pattern he describes as a semantic profile or prosody. Hunston (2002) identifies Mutual Information (MI) as a common measure for detecting collocations that occur more often than expected by chance. Stubbs (2001) notes that MI is frequency-sensitive, favouring rare pairs and penalising frequent ones, and is therefore best interpreted alongside frequency-based measures such as Log-Likelihood.

1.6 Resilience in Health Discourse and Patient-Centered Communication

Ang et al. (2023) found that resilience-based interventions in oncology were more effective when the concept was introduced clearly and consistently. Schellekens et al. (2024) likewise describe "resilience" as an ongoing process of adaptation rather than a fixed personal characteristic, again underlining the value of consistent presentation in clinical communication. Bryant and Aggleton (2025), however, argue that current discussions often emphasize individual responsibility while neglecting the wider social and structural conditions that shape health. Appropriate collocational framing may therefore reduce semantic misunderstanding while avoiding interpretations that place responsibility solely on individual patients.

2 Methodology

This study used a quantitative design including 2 phases. The first phase examined the lexicographic development of "resilience," with the present-day sense inventory based on the CD, the OLD, and the Online Etymology Dictionary (OED). The second phase was corpus linguistics (CL), and data in this phase was from englishcorpora.org. The Health and Medicine section of the Corpus of Contemporary American English (COCA), covering texts published between 1990 and 2019, is the primary source because it reflected American medical discourse, including academic medical writing, popular health journalism, and patient-oriented health communication. The broader COCA and the global English corpora on the same platform provided comparison data representing everyday and academic English. The three sense-specific sub-corpora were built by querying "resilience" in the Health and Medicine register and retaining, for each sense, the concordance lines whose immediate context contained the diagnostic lexis established in Section 3.1.1.

The Daily-Usage sub-corpus was drawn from the general register without sense filtering, so that it functions as an unfiltered benchmark. Unassigned lines were sampled for manual analysis. Because this analysis involves interpretive judgement, a coding manual was prepared in advance defining three categories with two worked examples each. The manual specifies that two coders work independently from a shuffled sample, that agreement be reported as both raw agreement and Cohen's kappa, and that disagreements be resolved by discussion. The manual, the full cue inventory, and the analysis code are available in the data and code repository (see Data and Code Availability). Collocates were extracted within a five-word window on either side of the node, and function words were removed using a stoplist. Log-likelihood, computed in AntConc 4.3.1 (Anthony, 2024) with the four-term formula and a Bonferroni-corrected threshold, was the criterion of reliable attraction, and only collocates passing it were retained. Mutual information was reported as a complementary index, with no cutoff because it is frequency-sensitive (Stubbs, 2001) and ranks collocates differently from other measures (Stubbs, 1995). The threshold of 3 (Hunston, 2002) does not transfer to node-centered sub-corpora, where the node is roughly 4.5 percent of tokens and expected frequencies are inflated.

3 Data Analysis and Discussion

3.1 Data Analysis

3.1.1 Lexicographic Synthesis of "Resilience"

Table 1 summarizes the information recorded in the OED and the CD.

Table 1. Diachronic Synthesis of "Resilience" Across Two Reference Works

Period	Source	Core sense	Extensions
1520s	Etymology (Old French/Latin)	Verb "resile:" to draw back	Withdraw from an agreement; from Latin resilire, "to leap back"
1620s	Etymology (English)	Noun "resilience:" act of rebounding or springing back	Applied chiefly to immaterial rather than physical things
1640s–1670s	Etymology (English)	Adjective "resilient:" springing back to an original position	Extended by the 1670s to material things resuming their shape after compression
1824	Etymology (physical sciences)	Elasticity; power of returning to an original shape after compression	Technical use in physics and materials science
1830	Etymology (figurative)	Of persons: bouncing back from difficulties	Metaphorical transfer from matter to human experience
1857	Etymology (English)	Noun "resiliency" (resilience plus the abstract suffix -cy)	The power of recovery as a general quality
Modern	Cambridge (Sense 1)	The ability to be happy or successful again after something difficult or bad has happened	Psychological, developmental, educational, and health discourse
Modern	Cambridge (Sense 2)	The ability of a substance to return to its usual shape after being bent, stretched, or pressed	Material and engineering discourse, continuous with the 1824 elasticity sense
Modern	Cambridge (Sense 3)	The quality of being able to return quickly to a previous good condition after problems	Economic, ecological, infrastructural, and institutional systems

Note. Dates and glosses for the historical rows follow the OED (n.d.); the modern rows follow the Cambridge Dictionary (CD) (n.d.).

Three patterns emerge. First, the original meaning, glossed as "act of rebounding or springing back" (Online Etymology Dictionary, n.d.), is no longer presented as a separate sense in modern dictionaries but serves as the basis from which the other two senses developed. Second, the physical sense first recorded in 1824 has changed very little and corresponds closely to Sense 2 in the CD, where it still refers to the elasticity of a material. Third, the figurative use referring to people later developed into two separate senses, a psychological sense and a systemic sense, which together account for most uses of "resilience" in contemporary English. This development forms the basis for the three-sense classification used in the corpus analysis.

3.1.2 Corpus-based Analysis (CBA)

Concordance lines for each of the four sub-corpora were generated in AntConc (Anthony, 2024) using "resilience" as the node with a collocational window of L5 to R5, and Log-Likelihood and MI values were computed there.

Sense 1: Psychological Sense (PS): The Psychological sub-corpus contains 47,962 tokens and 2,246 KWIC instances of "resilience." Most content collocates within the five-word window describe emotional and developmental aspects of human experience. Table 2 lists those passing the Bonferroni-corrected threshold, ranked by Log-Likelihood, with values from 19.39 for "fostering" to 68.31 for "emotional," indicating a reliable association with the node. Mutual Information values are much lower, from 0.72 for "stress" to 1.18 for "fostering," and are interpreted as set out in Section 2.3.

Table 2. Content Collocates of Resilience in the Psychological Sub-Corpus

Collocate	Freq.	Freq. L	Freq. R	Log-Likelihood	MI
emotional	187	168	19	68.31	0.93
personal	142	109	33	51.54	0.93
children	196	79	117	47.09	0.74
build	107	103	4	41.43	0.97
character	77	59	18	40.94	1.15
academic	110	94	16	36.50	0.89
spirit	72	8	64	33.79	1.08
human	84	17	67	30.49	0.93
stress	131	67	64	29.48	0.72
building	82	72	10	26.91	0.88
inner	64	53	11	25.70	0.99
coping	75	26	49	23.68	0.86
scale	45	8	37	19.61	1.03
recovery	47	11	36	19.54	1.01
fostering	35	32	3	19.39	1.18

Note. Measures as defined in Section 2.3. All content collocates above the threshold are listed except assess (LL = 18.81).

The node attracts premodifiers denoting domains of experience, "emotional," "personal," "inner," and "academic," and is followed by "children," "scale," and "recovery," with "build" and "building" recurring pre-nominally. The full cue inventory used for automatic classification is available in the data and code repository (see Data and Code Availability).

Sense 2: Physical or Material Sense (PhS): The Physical sub-corpus is the smallest at 1,074 tokens and 47 KWIC instances. Because it is too small for reliable AntConc collocate statistics, content collocates were tabulated with a custom R routine applying the same stoplist and window as for the larger sub-corpora. Table 3 reports the resulting counts.

Table 3. Content Collocates of Resilience in the Physical Sub-Corpus

Collocate	Freq.	Freq. L	Freq. R
lift	7	0	7
extreme	6	0	6
skin	6	3	3
Lauder	5	5	0
adds	4	4	0
elastic	4	4	0
Estée	4	4	0
firming	4	0	4
hair	4	2	2
lifting	4	1	3
skin's	4	4	0
strength	4	1	3
ultra	4	0	4
crème	3	0	3
firmness	3	0	3

Note. Absolute counts only; no association statistics could be computed. Most items derive from a single cosmetics product line.

The concordance lines fall into two clusters. The first is a cosmetic register, where "resilience" refers to the elastic capacity of skin and is invoked through brand naming and product description, as in "improve skin's resilience and firmness." The second is a materials science register, where it denotes the capacity of a substance to recover its shape after deformation, as in "an alloy stronger and with more resilience than either component alone." Both instantiate the original 1824 sense recorded in the Online Etymology Dictionary. The two registers separate lexically: "skin," "hair," "firming," "firmness," "crème," and "lifting" mark the cosmetic subset while "elastic" and "strength" mark the materials science one. These collocates

are low in frequency but almost entirely confined to this sub-corpus, so they return high MI values while the high-frequency Psychological and Systemic collocates return modest ones, a contrast reflecting the frequency sensitivity described in Section 2.3 rather than any difference in reliability. Given the size of this sub-corpus, the narrowness of its lexical range, and the skew introduced by a single product line, the profile of Sense 2 should be treated as suggestive rather than established.

Sense 3: Systemic Sense (SS): The Systemic sub-corpus contains 88,191 tokens and 4,018 KWIC instances of "resilience," making it the second-largest sense-specific dataset. Its collocational environment is dominated by the domains of climate, economy, ecology, infrastructure, and governance. Table 4 reports the highest ranked content collocates.

Table 4. Content Collocates of Resilience in the Systemic Sub-Corpus

Collocate	Freq.	Freq.-L	Freq.-R	Log-Likelihood	MI
building	224	189	35	99.18	1.04
climate	471	227	244	96.91	0.86
engineering	72	30	42	89.68	1.88
build	176	173	3	64.18	0.94
ecological	145	97	48	63.82	1.04
Stockholm	97	84	13	54.93	1.20
disaster	200	155	45	51.35	0.77
economic	266	157	109	50.77	0.66
capacity	198	78	120	48.41	0.75
community	188	147	41	45.94	0.75
national	156	113	43	44.65	0.82
tenacity	82	34	48	41.13	1.12
centre	79	12	67	34.17	1.03
business	165	95	70	31.72	0.66
flourishing	19	8	11	31.22	2.21

Note. Measures as defined in Section 2.3. Fifteen highest ranked of 28 content collocates above the threshold.

The concordance lines confirm that "resilience" here denotes the capacity of a system, whether an ecosystem, an economy, a financial institution, an infrastructure network, a community, or a nation, to absorb, recover from, and adapt to disturbance. Premodification is domain-marking rather than experiential, with "climate," "economic," "ecological," and "national" to the left,

"capacity," "centre," and "engineering" to the right, and "disaster" recurring as a compound element. This profile is the most institutionally oriented of the three, and none of its top-ranked collocates overlaps with those of Sense 1.

Sense Distribution in Daily Usage: The Daily-Usage sub-corpus contains 247,822 tokens and 10,932 KWIC instances of "resilience." Each instance was processed through an automated cue-based classification implemented in R, using the diagnostic lexis identified for Senses 1, 2, and 3 augmented with additional lexis indexing the contemporary rhetorical extensions of each sense. For each line a score was computed per sense as the count of cue items within the L10 to R10 window; the line was assigned to the highest-scoring sense, marked Ambiguous if two senses tied, and Unresolved if no cue was present. The wider span was selected after pilot testing at L5 to R5, because the daily-usage register frequently places the disambiguating context several tokens from the node. Table 5 reports the resulting distribution.

Table 5. Sense Distribution of Resilience in the Daily-Usage Sub-Corpus (n = 10,932)

Sense category	Frequency	Percentage
Sense 1: Psychological	2,897	26.5%
Sense 3: Systemic	1,715	15.7%
Sense 2: Physical	71	0.6%
Ambiguous (tied score)	393	3.6%
Unresolved (no cue in window)	5,856	53.6%
Total	10,932	100.0%

Note. Percentages are of all 10,932 instances; the 61.9, 36.6, and 1.5 percent figures in the text are of the 4,683 resolved instances.

Of the 4,683 resolved instances, the PS was most common at 61.9 percent, followed by the SS at 36.6 percent, with the PhS at only 1.5 percent. A chi-square goodness-of-fit test in R confirmed that the distribution differed significantly from an equal distribution, $\chi^2(2, N = 4{,}683) = 2{,}580.85$, $p < .001$. Within this sub-corpus, then, the PhS is residual, while the psychological and systemic senses account for almost all resolved instances. The 5,856 Unresolved instances were examined through a manual analysis of a stratified random sample of 100 concordance lines. Because the sample was drawn from the Unresolved set, the coding describes the residue rather than validating the cue inventory. Three patterns recur. In approximately 64 percent, "resilience" carries a figurative positive human quality sense in a register lacking the diagnostic Sense 1 cues such as "emotional" or "children," functioning as a general term of praise for people or groups and co-occurring with "strength," "courage," "determination," "remarkable," and "extraordinary." In approximately 22 percent it applies to institutions, traditions, or abstract entities such as markets, cultures, political systems, and art forms rather than to individuals.

The remaining 14 percent consists of titles or labels with too little context to identify a sense. Two observations follow. First, no example provided evidence for a fourth sense beyond the three identified in the CD: cases lacking Sense 1 cues are better read as broader uses of that sense, and institutional and abstract uses as broader applications of Sense 3 in social, cultural, and political contexts. Second, the high proportion of Unresolved lines together with the prevalence of generalized human-quality usage indicates a stylistic broadening of the PS, in which "resilience" has migrated from the technical psychology literature into a generalized rhetoric of personal and national virtue, evidenced by the recurrent collocations with "courage," "determination," "remarkable," "incredible," "tremendous," "extraordinary," and "testament."

Chi-Square Test of Sense by Collocate Independence: A Pearson chi-square test of independence was conducted in R to determine whether the three CD senses have distinct collocational profiles, using a contingency table recording how often each of the 38 diagnostic collocates occurred with each sense. To satisfy expected-frequency assumptions, only collocates totalling at least 5 occurrences across the three sense sub-corpora were retained, giving a cell sum of 4,607. The test yielded a highly significant result, $\chi^2(74, N = 4{,}607) = 6{,}905.65$, $p < .001$, with a large effect size, Cramér's V = .86, computed with the cramers_v function from the effectsize package (Ben-Shachar et al., 2020), well above the conventional benchmark for a large effect (Cohen, 1988). Because the Physical sense contributes only 19 of the 4,607 tallied tokens, 42 of the 114 cells have expected frequencies below five, so the test was verified by Monte Carlo simulation with 10,000 replicates, which returned the same conclusion ($p < .0001$). Table 6 summarizes both inferential tests.

Table 6. Summary of Inferential Statistical Tests.

Test	χ^2	df	p	Cramér's V	N
Chi-square independence (3 × 25 cases)	6,905.65	74	< .001	.86	4,607
Chi-square goodness-of-fit (Daily Usage)	2,580.85	2	< .001	—	4,683

Note. Both tests were computed in R (R Core Team, 2025); Cramér's V from the effectsize package (Ben-Shachar et al., 2020).

The magnitude of Cramér's V indicates that the three senses tend to occupy distinct regions of the lexical space surrounding "resilience," which provides the evidence base for the disambiguation analysis

3.2 Discussion

3.2.1 Answer to Research Questions

Question 1 (senses and their development): Contemporary dictionaries record three present-day senses of "resilience," a PS, a PhS, and an SS, all descending from the Latin "resilire," formed from "re," meaning "back," and "salire," meaning "to leap." The chronology of their development, from the 1620s rebounding sense through the 1824 PhS to the 1830 figurative extension that later bifurcated, is set out in Table 1.

Question 2 (distribution across registers): Sense distribution is register-dependent. In the health and medicine register, the diagnostic profiles reported in Tables 2 to 4 separate cleanly and the psychological sense predominates. In the general register, the weighting shifts: Table 5 shows the psychological sense at 61.9 percent and the systemic sense at 36.6 percent of resolved instances, with the physical sense residual, while 53.6 percent of all instances carry no local cue to any sense.

Question 3 (implications for health communication): Patients interpret "resilience" mainly through its surrounding words rather than the term itself. Where clear cues are absent, they may fall back on earlier understandings rather than the adaptive meaning clinicians intend. Kim et al. (2025) indicate that such ambiguity may be particularly consequential for patients with limited English proficiency, who already experience documented disparities in health outcomes. The corpus also supplies the remedy: because the diagnostic cues for each sense are known, clinicians can pair "resilience" with process-oriented collocates such as "build," "building," "coping," and "training" to activate the adaptive-process reading, and use relational

rather than individual framing to avoid the reductive individualism noted by Bryant and Aggleton (2025).

Summary and Theoretical Integration: The findings converge with the independent predictions of the studies reviewed above. The dominance of the figurative senses and the recession of the 1824 PhS to 1.5 percent reproduce, at the corpus level, the sense-frequency effect documented by Frazier and Rayner (1990) and Foraker and Murphy (2012) and the diachronic frequency dynamics modeled by Feltgen et al. (2017) and Karjus et al. (2020). The extension chain established lexicographically is consistent with the semantic-chaining framework of Yu and Xu (2025) and with the conceptual-metaphor framework of Lakoff (1993) and Lakoff and Johnson (1980/2003), while the derivation of three related senses from one etymon instantiates the radial-network model of Bond et al. (2024) and Burridge and Stebbins (2019). The 53.6 percent Unresolved and 3.6 percent Ambiguous rates support the graded character of sense boundaries argued for by Geeraerts (2010), Li (2024), and Haber and Poesio (2024), and the laudatory virtue usage that pervades the Unresolved set aligns with the semantic-prosody theory of Sinclair (1991), Louw (1993), and Stubbs (2001). It can plausibly be interpreted through the invited-inferencing account of Traugott and Dasher (2002), although confirming that would require diachronic evidence beyond the present data. The method itself follows the collocational principles of Firth (1957), Sinclair (1991), Hunston (2002), and Stubbs (1995), while the institutional spread of the SS is consistent with the policy-diffusion trajectory documented by Gupta (2024).

4 Implications and Conclusion

4.1 Implication

Theoretically, three implications follow. Because the three-sense inventory was fixed from the dictionaries before any collocational data were examined, the corpus evidence tests the lexicographic categories rather than producing them, which offers a replicable procedure for validating dictionary senses against authentic usage. Further, more than half of the Daily-Usage occurrences could not be assigned confidently to a single sense, indicating that word senses often have gradual rather than sharply distinct boundaries. Finally, the recurring use of "resilience" to express admiration or desirable personal qualities is an evaluative function recorded in none of the three dictionary senses, which suggests that reference works may need to record the evaluative dimension of high-frequency abstract nouns alongside their referential senses. Practically, the contribution is to convert this polysemy into an operational resource. Inasmuch as the sense a patient assigns is governed by the collocational environment rather than by the word alone, patient-facing materials can be framed deliberately, plain-language glossing can reduce the comprehension risk documented by Kim et al. (2025), and sense-aware framing can be built into clinician communication training.

4.2 Limitation and Future Research Suggestions

The data come from COCA and the associated corpora on the English-Corpora platform, so the results describe present-day American English only. The cue-based classification depends on a fixed cue inventory and a fixed contextual window, so the 53.6 percent Unresolved rate reflects both genuine semantic gradience and the reach of the method, and the manual interpretation of that set rests on 100 lines coded by the authors, with the reliability check outlined in Section 2.2 remaining to be carried out. The Physical sub-corpus is very small at 47 KWIC instances and lexically narrow, with much of its lexis deriving from a single cosmetics product line, so claims about that sense are correspondingly tentative. The analysis measures sense distribution in corpus text rather than in clinical encounters, so the

health communication implications await validation against direct measurement of patient comprehension. Finally, the study is synchronic, and its diachronic claims rest on the lexicographic chronology rather than on a diachronic corpus.

Experimental studies are needed to examine how patients interpret "resilience" in different collocational contexts and whether the proposed wording supports the interpretation clinicians intend, particularly among those with limited English proficiency. A diachronic study based on the Corpus of Historical American English could trace the development of the psychological and systemic senses and test whether usage data support the dictionary chronology. Comparative work could then test whether the three-sense distribution extends beyond American English, once the reliability design outlined in Section 2.2 has been implemented in full together with larger validation of the virtue-rhetoric category.

4.3 Conclusion

Combining lexicographic evidence with a corpus of 17,243 concordance lines from four sub-corpora, this study identified three collocationally distinct senses of "resilience" traceable to the Latin "resilire." The psychological and systemic senses now occur far more frequently than the original PhS, while their interpretation in everyday usage still depends on context. The collocational cues identified here can support patient information and clinician training, encouraging more consistent use of the term and reducing misunderstanding. Although further research is needed to examine these patterns in real clinical interactions, the findings show how corpus-based evidence can contribute to clearer and more patient-centred health communication.

4.4 Data and Code Availability

The R script for cue-based classification and statistical testing, the collocate frequency tables for the four sub-corpora, the coding manual, the cue inventory, the contingency table, and the significance-test summary are openly available at Pham and Nguyen (2026), https://doi.org/10.5281/zenodo.21937522.

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