
A Pragma-Discoursal Analysis of Deictic Expressions in Healthcare Products Testimonials ♦

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Abstract

This study aimed to investigate how deictic expressions (person, spatial, temporal, social, and discourse) improved authenticity, trust, and persuasiveness in patients' testimonials for healthcare products. It identified and classified these expressions, examined their pragmatic-discoursal roles, and analyzed how their frequency and type affected perceived credibility. Guided by Fillmore (1971), Bühler (1934), and Levinson's (1983) theories, the research utilized a mixed-methods design combining survey data from 100 respondents and a semi-structured interviews with 47 patients. Quantitative results showed all deixis types positively influence testimonial impact, with person deixis being the strongest predictor ($\beta = 0.365, p < .001$). Qualitative findings highlighted person and temporal deixis as key to crafting engaging, credible narratives, while spatial, discourse, and social deixis supported coherence and respectful tone. The study concluded that person and temporal deixis are the most influential in shaping persuasive patient stories.

Keywords: deixis, pragmatics, discourse analysis, healthcare communication, patient testimonials, persuasive discourse.

تحليل تداولي-خطابي للتعبير الإشارية من وجهة نظر مستخدم منتجات الرعاية الصحية

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المستخلص

تستكشف هذه الدراسة كيفية تعزيز التعبير الإشارية (الشخصية، والمكانية، والزمانية، والاجتماعية، والخطابية) المصدقية والثقة والقدرة على الإقناع من وجهة نظر المرضى والمستهلكين حول علاجات ومنتجات الرعاية الصحية. تُحدد الدراسة هذه التعبير وتُصنّفها، وتدرس أدوارها التداولية-الخطابية، وتُحلل تأثير تواترها ونوعها على المصدقية المُدركة. واسترشادًا بنظريات فيلمور(١٩٧١)، وبوهليير(١٩٣٤)، وليفينسون(١٩٨٣)، يستخدم البحث تصميمًا متعدد المناهج يجمع بين بيانات استطلاع رأي من ١٠٠ مُستجيب والمقابلات شبه المنظمة مع ٤٧ مريضًا ومستهلكًا. تُظهر النتائج أن جميع أنواع التعبير الإشارية تؤثر إيجابًا على أثر الشهادة. لقد أظهرت النتائج الكمية أن التعبير الإشاري الشخصي أقوى مُتنبئ $(\beta = 0.365)$ ، $p < 0.001$. وتبرز النتائج النوعية أن التعبير الإشاري الشخصي والزمني يلعبان دوراً رئيسياً كمفتاح لصياغة سرديات مقنعة وذات مصداقية، بينما يدعم استخدام التعبير الإشاري المكاني، والخطابي والاجتماعي التماسك والنبرة المُحترمة. وخلصت الدراسة إلى أن السمات الشخصية والزمانية هي الأكثر تأثيراً في تشكيل القصص المقنعة للمرضى.

كلمات مفتاحية: الإشارية، البراجماتية، تحليل الخطاب، التواصل في مجال الرعاية الصحية، شهادات المرضى، الخطاب الإقناعي

1.Introduction

Healthcare communication increasingly relies on patient-generated content, particularly testimonials that narrate personal experiences with medical products (e.g., Ziebland & Wyke, 2012; Fox, 2011). In these testimonials, meaning is not merely descriptive; they also function as instruments of persuasion and as mechanisms for constructing trust and guiding decision-making (Huh et al., 2016; Mudambi Schuff, 2010). In this context, deictic expressions, which are linguistic devices that ground meaning in the speaker's viewpoint (Levinson, 1983) serve as essential elements in determining how testimonials are understood.

Deixis, as theorized by Fillmore (1971), Bühler (1934), and Levinson (1983), encompass five core categories: person, spatial, temporal, social, and discourse, which in this study function as the independent variables. Their pragmatic roles are examined in relation to dependent variables including perceived authenticity, trustworthiness, persuasiveness, and imagability, while demographic factors such as gender, age, and education are treated as control variables. (Levinson, 1983)

In testimonial discourse which is a general term for various types of 'evidence', like informed opinion and authority, statistics, maxims, laws and examples (Sidiropoulou, 2021, p.63). deixis can personalize experience ("I felt better"), contextualize location ("here at the clinic"), and structure narrative flow ("as mentioned earlier").

Despite its theoretical richness, the empirical role of deixis in healthcare testimonials remains underexplored. This study addresses this gap by examining how deictic expressions operate in Arabic-language patient testimonials, particularly within the Iraqi context, and how they influence readers' perceptions of authenticity, trust, and persuasive impact.

Situating deixis within Arabic-language patient testimonials, the study asks: which types of deixis are most common, how they support personalization and engagement, whether they enhance perceived trustworthiness, and which type most strongly affects persuasiveness. The significance of the study lies in both theory and practice;

theoretically, the study operationalizes deixis in a real-world genre, empirically, its mixed-methods design uncovers usage patterns across diverse health contexts, strengthening pragma-discoursal claims. Practically, the findings inform healthcare communication and patient education, demonstrating how deixis enhances authenticity and persuasion, and guiding ethically sound, patient-centered strategies that foster deeper audience resonance.

1.1 Theoretical Models of Deixis

This study is grounded in core theories of deixis developed by Fillmore (1971), Bühler (1934), and Levinson (1983), which remain central to pragmatic and discourse analysis. Together, these models classify deixis into five categories (person, spatial, temporal, social, and discourse) each functioning as a context-dependent resource for meaning construction. Fillmore (1971) emphasized speaker anchoring, arguing that deictic expressions derive meaning only in relation to the speaker's position in time and space, a perspective particularly relevant to patient testimonials centered on personal experience. Bühler's (1934) concept of the deictic field further situates meaning around the speaker's point of view, highlighting how time and place structure experiential narratives. Levinson (1983) formalized deixis as a core pragmatic phenomenon at the interface of semantics and discourse, providing a systematic framework for analyzing how deictic expressions organize meaning, coherence, and relational stance. Based on these frameworks, the present study applies deictic theory to Arabic-language patient testimonials to examine how deixis enhances authenticity, trust, and persuasiveness in healthcare communication.

1.2 Literature review

Although deixis has been widely studied, its role in healthcare testimonials remains underexplored. This study investigates how deictic expressions enhance authenticity, persuasiveness, and narrative coherence.

For instance, Nagham Majeed (2005), in "*A Study of Deictic Expressions in English*," found that person, spatial, and temporal deixis are central to structuring reference and maintaining coherence in English discourse.

Similarly, Suhair Safwat M. Hashim (2009), in *“Deixis in the Language of Nursing,”* demonstrated that deictic expressions play a key role in creating cohesive narratives and engaging audiences in nursing discourse. In addition, several other studies have also investigated deixis specifically in healthcare and related communicative contexts such as Gedutyte (2013), in the *“The Usage of Deixis in Advertisements Related to Healthcare”*, shows how spatial and temporal deixis boosts credibility and relatability in ads, yet overlooks their pragma-discoursal role. In addition, Sassenrath (2020) in *“Are You Concerned? Patient Testimonials in Medical Communication Affect Healthy Recipients’ Emotions and Memory”* demonstrated that patient testimonials influence recipients’ emotions and memory, with person and temporal deixis playing a key role in anchoring experiences and fostering engagement. Other relevant studies examined deixis in applied and cross-disciplinary contexts, providing perspectives on processes applicable to healthcare testimonials. For example, Thouraya Zheni (2020), in *“Person Deixis as Biased Political Pronouns in George W. Bush’s Speeches on Iraqi War II”*, analyzed how person deixis reflects ideological positioning and creates bias. Moreover, Dancygier (2021), in *“Fictive Deixis, Direct Discourse, and Viewpoint Networks”*, explored how deictic mechanisms construct perspective and guide audience interpretation in narrative texts. Though not centered on healthcare, these works offer key conceptual and interpretive insights into deixis’s role in compelling or storytelling discourse, leaving a gap in understanding how deictic expressions function in real world context.

Previous studies have shown that deictic expressions have attracted considerable scholarly attention, particularly with respect to their functions in general, political, narrative, and healthcare-related discourse. Most of this research has concentrated on identifying types of deixis and explaining their roles within only discourse or narrative structures. Yet, there remains a gap in studies that specifically investigate pragmatic-discoursal deixis in patient healthcare testimonials, especially in examining how person, temporal, spatial, and discourse deixis interact to reinforce authenticity, credibility, and persuasiveness. The present study seeks to address this gap by analyzing deictic expressions in healthcare testimonials through a pragma-discoursal lens, focusing on

how these linguistic resources shape recipient perception and engagement. In doing so, it extends previous scholarship while offering new perspectives into the role of deixis in persuasive patient narratives.

1.3 Deixis Definition

Deixis is a technical term derived from Greek that refers to one of the fundamental functions of language: ‘pointing’ through utterances. Any linguistic form that achieves this ‘pointing’ is called *deictic expression*. For example, when one encounters an unfamiliar object and asks, ‘What’s that?’, the word ‘that’ serves as a deictic expression indicating something in the immediate context. These expressions are also known as indexicals (Yule, 1996).

Deixis appears to be a universal feature of human communication (Kryk, 1990), linking utterances to be the contexts that they are produced via the three fundamental deictic dimensions, that is to say, the spatial ‘*In the hospital*’, the temporal ‘*After two days*’ and the personal ‘*I used a fever injection*’. Deixis is generally explained as being a subcategory of reference (Nuyts, 1987) and one which, in the words of Levinson (1992:52) “straddles the semantics/pragmatics border”. (Richardson, 1998)

1.4 Deixis Types

There are five major categories of deixis, namely person, place, time, social and discourse deixis (Levinson, 1983).

1.4.1 Person deixis

Person deixis refers to the type of deixis that identifies the individuals involved in a communicative interaction, typically expressed through personal pronouns. Person deixis encodes the roles of participants in the speech event, where the speaker is represented by the first-person pronoun “*I*” and the hearer or interlocutor by the second-person pronoun “*you*”. These pronouns are central to communication as their referents shift dynamically depending on who assumes the speaker or listener role at any given moment. For example, “*I noticed a difference in my blood pressure.*” (e.g., Case P.7, Appendix E). Here, “*I*” refers to the speaker (Panggabean, 2022)

1.4.2 Time Deixis (Temporal Deixis)

Time deixis, which is also known as temporal deixis, refers to the positioning of actions and events in relation to time. Essentially, it indicates time in relation to a specific temporal reference point, which is usually the moment of speaking. Indicators of temporal deixis include time-related adjectives such as ‘yesterday,’ ‘now,’ and ‘tomorrow,’ as well as various verb tenses (Finegan, 2008).

1.4.3 Spatial Deixis

According to Lyons (1977), spatial deixis (place deixis) is connected to how physical objects are situated in specific locations within the physical world, inherently involving the positions of the speaker and/or addressee. It will now be demonstrated that place deixis also pertains to the spatial orientations of physical objects, particularly regarding perceived asymmetries in their forms. This form of place deixis is expressed through a combination of deictic and non-deictic terms related to spatial organization.

In the example “The first time I used it, I was at home, and my husband was with me” (Case P.8, Appendix F), the phrase “at home” functions as a spatial deictic expression, anchoring the event to a specific location relative to the speaker (Lyons, 1977).

1.4.4 Discourse Deixis

According to Marmaridou (2000), discourse deixis is defined as the use of expressions within an utterance to refer to specific parts of the discourse that include that utterance (as cited in Levinson, 1983). It represents deixis in textual form. Whether spoken or written, a text is inherently linked to the concepts of space and time. An orally produced text unfolds temporally for both the speaker and the listener, while in its written form, both the act of writing and the act of reading occur within a physical spatial and temporal context. Consequently, discourse deixis is typically articulated using expressions that encode spatial or temporal deixis, as illustrated in the following example:

“**Initially**, it has no side effects.” (Case P.31, Appendix G).

The word “Initially” signals the beginning of a new evaluative segment

in the discourse. It guides the listener/reader through the structure of the testimonial, marking a shift in the narrative.

1.4.5 Social Deixis

Social deixis serves to highlight the social status of individuals participating in a conversation and reflects the social relationships between them. Levinson (1983, p. 90) distinguishes two primary categories of socially deictic information: absolute and relational. Absolute social deixis pertains to specific address terms used for individuals with particular social standing, such as “doctor” or “family”, as illustrated in the present data (Patient 31, Appendix G).

1.5 Deixis in Persuasive and Pragmatic Discourse

Deictic expressions serve as fundamental building blocks in persuasive communication. While foundational pragmatic accounts emphasize the role of deixis in enhancing message clarity, emotional engagement, and audience involvement (Lyons, 1977; Yule, 1996), empirical studies have demonstrated that deictic choices significantly affect perceived credibility and persuasive impact in authentic discourse contexts, particularly in narrative and testimonial genres (Hyland, 2005; Huh et al., 2016). Research on personal and experiential discourse shows that person deixis (e.g., I, we, you) fosters immediacy, involvement, and trust by foregrounding lived experience, whereas temporal deixis (e.g., now, after two weeks) situates claims within concrete timelines, improving narrative plausibility and credibility (Bamberg, 1997; Hyland, 2005). These claims are examined empirically in the present study through questionnaire and interview data, with sample materials provided in the appendices.

1.6 Linguistic Framing and Testimonial Credibility

Studies in health communication and consumer reviews (e.g., Hyland, 2005; Chilton, 2004) highlight the importance of linguistic framing in shaping audience perceptions. In healthcare discourse, deictic expressions function as framing devices that guide interpretation, establish narrative flow, and signal relational cues. For example, patient testimonials often employ proximal deixis (“this treatment changed my life”) to create immediacy and credibility, while clinicians use social

deixis (“we will monitor your progress”) to convey authority and solidarity. Public health campaigns similarly rely on discourse deixis (“as mentioned earlier in this leaflet”) to enhance coherence and reinforce trust. Such examples illustrate how framing through deixis directly impacts testimonial credibility in healthcare contexts.

2. Methodology

2.1 Research Design

This study adopted a convergent parallel mixed-methods design (Creswell & Plano Clark, 2011), in which quantitative questionnaire data and qualitative interview data were collected simultaneously, analyzed independently, and merged at the interpretation stage to capture both correlations and pragmatic mechanisms of deixis in healthcare testimonials. The quantitative strand involved 100 adult Arabic-speaking participants recruited through convenience sampling from universities, social networks, and community connections, each completing a 20-item Likert-scale questionnaire (validated by experts, pilot-tested with 30 respondents, Cronbach’s $\alpha = .805$) that measured the impact of person, spatial, temporal, social, and discourse deixis on perceptions of authenticity, trust, imagability, and persuasive effect. Samples of the questionnaire items and a complete questionnaire are provided in (Appendices C and D). From the other hand, the qualitative strand comprised 47 semi-structured interviews with patients recruited from health centers and clinics in Basra, conducted in Arabic with 15 concise, judge-approved questions that explored personal experiences, motivations, contexts, and perceptions of healthcare products, the full Arabic version of the interview schedule is provided in Appendix A. Interview responses were manually recorded as handwritten field notes by the researcher during data collection, then transcribed into digital form and translated into English by the researcher herself for pragma-discoursal coding. Quantitative analysis in SPSS involved descriptive statistics, reliability testing, Pearson’s correlations, t-tests, ANOVA, and multiple regression to examine relationships between deixis categories and outcome variables. Qualitative analysis in NVivo employed within-case and cross-case coding to explore how deixis constructed closeness, authority, believability, and relational trust, with a second coder involved

to ensure analytical rigor. Integration was achieved through collaborative displays and narrative interweaving, directly comparing statistical patterns with discourse-level insights to provide a comprehensive account of how deictic expressions function persuasively in healthcare communication.

2.2 Participant Criteria

Participants were selected to ensure both breadth and depth of perspectives. The survey targeted Arabic-speaking adults in community and university settings to capture general perceptions of deixis in healthcare communication, while interviews focused on patients in Basra health centers to provide experiential accounts.

Inclusion criteria required participants to:

- Be over 18 years of age
- Be fluent in Arabic
- Be willing to share healthcare experiences

Data collection was managed through structured questionnaire and in-person interviews. All responses were collected with participant permission. Since the study is a mixed-methods case study, Arabic responses were translated by the researcher to meet the study objectives. These criteria ensured that participants could contribute data relevant to Objective 1 (identifying and sorting deictic expressions), Objective 2 (examining their discursive roles in patient testimonials), Objective 3 (investigating frequency of deixis and perceived trustworthiness), in addition to Objective 4 (assessing the differential persuasive effects of deixis types in healthcare promotion).

2.3 Data Analysis

This section outlines the pragma-discoursal analysis of three selected patient testimonials concerning healthcare products. Each case was examined individually to demonstrate how deictic expressions function within naturally occurring patient narratives.

The analysis followed a systematic procedure:

1. Contextualizing each testimonial by introducing the participant and health condition
2. Identifying and classifying deictic expressions into person, spatial, temporal, social, and discourse deixis
3. Interpreting their pragmatic and discursal functions in relation to the study objectives (authenticity, persuasion, evaluative stance)

Application of Analytical Models to the Selected Data

- Quantitative strand: Descriptive statistics summarized participant responses, providing an overall profile of perceptions of deixis. Reliability testing (Cronbach's α) confirmed internal consistency. Pearson's correlations examined associations between deixis categories and outcome variables such as trust and imaginability. Group differences were explored through t-tests and ANOVA, while multiple regression identified which forms of deixis most strongly predicted perceptions of authenticity and persuasive effect
- Qualitative strand: The 47 interviews were analyzed in NVivo through within-case coding (illuminating deixis in individual narratives) and cross-case coding (revealing recurring pragmatic mechanisms across participants). A second coder validated the coding framework to ensure rigor.
- Integration: Statistical outputs were juxtaposed with discourse-level themes, demonstrating how quantitative predictors of trust and persuasion were substantiated by qualitative accounts of closeness, authority, and believability. This explicit linkage between models and data underscores the appropriateness of the chosen analytical techniques and strengthens the validity of the study's conclusions.

2.4 Case Analyses: Deictic Expressions in Patient Testimonials

The following three cases (Cases 8,30, and 37) illustrate how the pragma-discursal analytical procedures were applied to individual patient narratives drawn from the interview data. For clarity and anonymity, each participant is referred to by a case number (e.g., Case

8), assigned according to the order of interviews and carrying no implication of hierarchy or importance. Following transcription, the testimonials for each case were systematically coded for deictic expressions in accordance with the predefined categories of person, spatial, temporal, social, and discourse deixis. These expressions were analyzed in relation to the study objectives and their pragmatic functions. Detailed classifications of the identified deictic expressions and their corresponding pragmatic roles are presented in Appendices H–J (Tables 1–3). The discussion in the main text focuses on interpreting how deictic choices contribute to meaning construction, credibility, and persuasive effect across the three cases.

Case 8

Participant profile: A patient who suffered from eczema and sought relief through a topical treatment obtained independently.

Testimonial:

“استخدمت علاجاً للأكزمة قبل خمسة أشهر بسبب أكزمة جلدية، وكان زوجي معي عندما استخدمته لأول مرة في المنزل. كان تأثيره سريع جداً، وبعد ثلاثة أيام شعرت بأكبر تغيير في حالتي. لاحقاً استخدمه زوجي أيضاً لأنه كان يعاني من أكزمة في يديه، وكانت تجربته مشابهة من حيث الفعالية. المنتج جيد جداً وسريع المفعول وبدون مواد كيميائية، وتعليماته كانت مصورة لأنه على شكل مرهم، مما جعل استخدامه سهلاً. تجربته ولاحظت تغييراً جذرياً بعد استخدامه، ولم أجد لإستشارة الطبيب. مع مرور الوقت تغيرت نظرتي له للأحسن، وتقييمي له بأنه منتج ممتاز. يتميز بأنه سريع المفعول، ويمكن استخدامه لأي منطقة في الجسم، وهو خفيف على البشرة. تفاجأت بسرعة مفعوله وجودته الممتازة.”

Discussion:

Case 8 uses temporal deixis such as “five months ago,” “after three days” to situate the experience within a clear timeframe, supporting perceptions of effectiveness (see Appendix H for illustrative examples). Person deixis “I used,” “my husband,” “I noticed” positions the patient as the primary experiencer while extending the account through shared use. Spatial deixis “at home” grounds the testimonial in a familiar setting, and social deixis appears in references to family and the absence of medical consultation, foregrounding personal judgment. Discourse deixis “very good,” “fast-acting,” “excellent product” reinforces positive

evaluation.

Case 31

Participant Profile: A patient who experienced recurring stomach pain and sought medical help.

Testimonial:

إستخدمت علاجاً للمعدة قبل حوالي شهرين بسبب آلام في المعدة، وكان أهلي معي عندما استخدمته لأول مرة في المنزل. كان تأثيره وقتياً وبسرعة يزول، وبعد أسبوع شعرت بأكثر تغيير. لم يستخدمه أحد غيري، وتجربتي معه كانت متوسطة؛ فهو سريع المفعول وسريع الزوال. التعليمات كانت باللغتين العربية والإنجليزية، وكانت مفهومة خصوصاً الجزء المتعلق بطريقة عمله. اخترت هذا المنتج لأن الطبيب وصفه لي، ورأي الطبيب أثر بالتأكيد على قراري باستخدامه. مع مرور الوقت تغيرت نظرتي له، فهو جيد وليس جيد، وتقبيبي له أنه “منتج متوسط. في البداية لم يكن له آثار جانبية، ولم أواجه أي مفاجآت أثناء استخدامه

Discussion:

Case 31 uses temporal deixis such as “a few months ago,” “after one week” to situate the experience within a plausible timeframe, supporting testimonial credibility (see Appendix I for illustrative examples). Person deixis such as: “I used,” “my family,” “the doctor prescribed it” positions the patient as the experiencer while acknowledging medical guidance. The evaluation e.g. “good and not good,” “average” reflects a neutral stance toward the product. Spatial deixis “at home,” “European Center” grounds the account in real-world settings. Social deixis appears through references to family and medical authority, indicating institutional influence on decision-making. Overall, Case 31 illustrates how deictic expressions contribute to a cautious, realistic, and balanced testimonial.

Case 37

Participant Profile: A patient who suffered from heart pain that had begun to interfere with his daily life.

Testimonial:

استعملت قبل فترة علاجاً للقلب تحديداً في سنة ٢٠٢٢، أي قبل ثلاث سنوات، بعدما صار عندي ألم بالقلب، وكان ابن أخي معي عندما استخدمته لأول مرة في البيت. لاحظت تأثيره خلال أشهر، تقريباً من خمس إلى ستة أشهر، وكان التغيير الأكبر أيضاً خلال هذه الفترة. لم يستخدمه شخص آخر غيري. كان دواءً جيداً

ولاحظت عليه تأثيراً إيجابياً، لكن لا أتذكر تفاصيل التعليمات. اخترت هذا العلاج لأن الطبيب وصفه لي، وكان طبيباً معروفاً واختصاص، ورأيه أثر على قراري باستخدامه. مع مرور الوقت لم تتغير نظرتي للمنتج، وما زلت أراه ذا تأثير إيجابي. لم أواجه أي مفاجآت أثناء استخدامه

Discussion:

Case 37 uses temporal deixis such as: “in 2022,” “within five to six months” to situate the experience within a long-term timeframe, supporting testimonial credibility (see Appendix J for illustrative examples). Person deixis “I used,” “my nephew,” “the doctor” positions the patient as the experiencer while highlighting social and medical involvement. Spatial deixis “at home” grounds the account in a familiar setting. Social deixis appears through references to family and medical authority, reinforcing trust. Discourse deixis e.g. “good medication,” “positive effect” conveys a sustained positive evaluation. Overall, **Case 37** illustrates how deictic expressions contribute to a stable, credible, and persuasive testimonial.

3. Results

3.1 Quantitative Findings

The questionnaire data demonstrated consistent agreement across items, with mean scores ranging from 3.37 to 4.27 (see Table 4.1). This indicates that participants generally endorsed the role of deictic expressions in shaping perceptions of healthcare testimonials. Standard deviations between 0.54 and 0.93 suggest moderate variability in responses.

Reliability analysis confirmed the internal consistency of the scale (Cronbach’s $\alpha = .805$). Although Items 3, 6, and 19 showed weaker corrected item-total correlations (.080, .212, and .203 respectively), the overall reliability remained above the acceptable threshold, supporting the use of the instrument in the main study.

To make the results explicit, representative item distributions are reported below.

Table 3.1: Frequency Distribution for Item 10

“Using temporal expressions makes the testimony seem more credible.”

Response Category	Frequency (n)	Percentage (%)
Strongly Disagree (1)	0	0.0
Disagree (2)	1	3.3
Neutral (3)	4	13.3
Agree (4)	20	66.7
Strongly Agree (5)	5	16.7
Total	30	100.0

Mean = 4.13, SD = 0.68

Similar patterns were observed across deixis categories:

- **Person deixis** (Item 1, M = 3.67) enhanced perceptions of closeness.
- **Spatial deixis** (Item 6, M = 3.37) was less strongly endorsed.
- **Temporal deixis** (Item 10, M = 4.13) contributed most to credibility.
- **Social deixis** (Item 12, M = 4.27) reinforced respect and trust.
- **Discourse deixis** (Item 15, M = 3.90) supported organization and persuasiveness.

3.2 Qualitative Findings

Semi-structured interviews with 47 patients in Basra health centers provided experiential accounts that complemented the survey data. Within-case and cross-case coding revealed that:

- **Person deixis** fostered intimacy and authenticity (“شعرت بتحسن بعد “إستخدام المنتج”).
- **Temporal deixis** anchored credibility by situating outcomes in time (“لاحظت النتائج بعد حوالي اسبوعين”).
- **Social deixis** conveyed respect and relational trust (“أنصح باستخدام لمن “يعانون من نفس الاعراض”).
- **Discourse deixis** structured narratives, enhancing clarity and persuasive effect (“في البداية, لم تظهر لدي أي أعراض جانبية”).

These themes substantiate the quantitative findings, showing that statistical predictors of trust and persuasion were mirrored in patient

narratives.

3.3 Integration of Quantitative and Qualitative Findings

What the research shows is that deictic expressions are important persuasion resources in healthcare communication. While quantitative data helped determine which type of deixis is more closely tied to perceived authenticity, qualitative accounts reveal how these expressions are applied when reading patient testimony.

4. Summary of Findings

The pragma-discoursal analysis of patient testimonials supports the study's objectives concerning the use of deixis in healthcare narratives. Although all participants used person deixis, deixis categories were unevenly distributed. Temporal deixis was consistently employed to mark symptom onset and progression, whereas discourse deixis appeared selectively, mainly in evaluative or recommendation contexts. Spatial deixis varied in specificity, and social deixis was particularly salient in caregiver narratives and instances involving medical authority. Addressing the first research question, the findings indicate that person and temporal deixis dominate testimonial structure, while social and discourse deixis function strategically to enhance authenticity, trust, and persuasion. Descriptive results showed that all five deixis categories were rated above the scale midpoint, with temporal deixis receiving the highest mean score ($M = 4.11$, $SD = 0.61$), followed by person deixis ($M = 3.78$, $SD = 0.56$), confirming deixis as a core component of persuasive healthcare narratives.

5. Conclusion

This study confirms that deixis is a core communicative resource in patient testimonials, enhancing authenticity, credibility, and persuasiveness. Person deixis emerged as the strongest persuasive factor by linking speakers directly to their lived experiences, while temporal deixis reinforced narrative coherence by structuring symptom onset and progression. The absence of demographic differences suggests that deixis operates consistently across participants, and the confirmed reliability of the instrument further supports these findings, indicating that personal and temporal deictic markers form the linguistic basis of

effective healthcare testimonials. In addition, the study applied established models of pragmatics to the analysis of deictic expressions, drawing specifically on Bühler's Organon Model (1934), Fillmore's framework of deixis (1973), and Levinson's theory of deixis and context (1983). These models enabled a systematic interpretation of how person, temporal, spatial, social, and discourse deixis function as context-dependent resources that encode speaker involvement, structure experiential narratives, and enhance persuasive intent in healthcare communication. The application of these pragmatic models situates the findings within a recognized linguistic framework and strengthens the theoretical grounding of the study.

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Appendix A: Interview Questions (Arabic Version)

1. هل يمكنك أن تصف تجربتك الشخصية مع منتج صحي أثر على صحتك بشكل مباشر؟
2. ما الشيء الذي دفعك لاستخدام المنتج (دواعي استخدامه).
3. أين كنت عندما لاحظت تأثير المنتج؟
4. متى استخدمت المنتج لأول مرة؟ كن دقيقاً (التاريخ، الوقت)؟
5. كم من الوقت استغرقك لملاحظة أي تأثيرات؟ صف الإطار الزمني؟
6. متى شعرت بأكثر تغيير؟ اربطه بأحداث أخرى؟
7. من، إن كان هناك أحد، كان معك عندما استخدمت المنتج لأول مرة.
8. هل استخدم شخص آخر المنتج؟ كيف كانت تجربتهم مقارنة بتجربتك؟
9. لو كنت توصي بهذا المنتج لشخص "هنا"، كيف ستصفه له؟
10. بالإشارة إلى التعليمات، أي جزء كان الأكثر إفادة/إرباكاً؟
11. كيف ترد عندما يسألك أحدهم "لماذا هذا المنتج وليس غيره؟"
12. كيف أثر رأي الأطباء أو الآخرين على قرارك باستخدام هذا المنتج؟
13. هل تغيرت نظرتك لهذا المنتج مع مرور الوقت؟ وكيف؟
14. ما هي الخصائص التي تود أن تبرزها لشخص يفكر باستخدام هذا المنتج؟

هل واجهتك مفاجآت أثناء استخدام المنتج؟ كيف وصفتها في حينها؟ 15.

Appendix B: Interview Questions (English Version)

1. Can you describe your personal experience with a health product that directly affected your health?
2. What motivated you to use the product (reason for use)?
3. Where were you when you noticed the product's effect?
4. When did you use the product for the first time? Please be precise (date, time).
5. How long did it take you to notice any effects? Describe the timeframe.
6. When did you feel the greatest change? Can you link it to other events?
7. Who, if anyone, was with you when you used the product for the first time?
8. Did anyone else use the product? How was their experience compared to yours?
9. If you were to recommend this product to someone "here," how would you describe it to them?
10. Referring to the instructions, which part was the most helpful or confusing?
11. How would you respond if someone asked, "Why this product and not another?"
12. How did the opinions of doctors or others influence your decision to use this product?
13. Has your perception of this product changed over time? If so, how?
14. What features would you highlight to someone considering using this product?
15. Did you encounter any surprises while using the product? How did you describe them at the time?

Appendix C: Sample Questionnaire Items Used in the Study

The following items represent selected samples from the questionnaire employed to investigate the use of deictic expressions in patients'

testimonials for healthcare products. Responses were measured using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Sample Items

(Person Deixis) الفقرة (١): التعبير الشخصي

تحتوي الشهادة على ضمائر المتكلم مثل (أنا، لي، عندي)

"مثال: "شعرت بتحسن بعد استخدام هذا المنتج

(Spatial Deixis) الفقرة (٦): التعبير المكاني

تساعد التعابير المكانية في تصور مكان استخدام المنتج

"مثال: "استخدمته في غرفة المعيشة

(Temporal Deixis) الفقرة (١٠): التعبير الزمني

استخدام التعابير الزمنية يجعل الشهادة تبدو أكثر مصداقية

"مثال: "استخدمته يوماً لمدة شهر

(Social Deixis) الفقرة (١٢): التعبير الاجتماعي

تعزز التعابير الاجتماعية من نبرة الاحترام في الشهادة

"مثال: "عزيزي القارئ، أوصي بشدة بهذا المنتج

(Discourse Deixis) الفقرة (١٥): التعبير الخطابية

يتم استخدام التعابير الخطابية لتنظيم الأفكار في الشهادة

"مثال: "أولاً، جربت الكريم، ثم استخدمت المكمل

Appendix D: Sample Completed Questionnaire (Anonymized)

The following is an anonymized example of a completed questionnaire illustrating how participants responded to the instrument.

Demographic Information (Sample)

المعلومات الديموغرافية (عينة)

الجنس: أنثى ذكر

الفئة العمرية: ٢١-٤٠المستوى التعليمي: بكالوريوس

Likert Scale:

١. لا أوافق بشدة

٢. لا أوافق

٣. محايد

٤. أوافق

٥. أوافق بشدة

Item	Statement (Abbreviated)	Response
رقم الفقرة	مضمون الفقرة (مختصر)	الإجابة
1	ضمائر المتكلم تجعل الشهادة أكثر شخصية	<input checked="" type="checkbox"/> 4
6	التعابير المكانية تساعد على التصور	<input checked="" type="checkbox"/> 3
10	التعابير الزمنية تزيد المصداقية	<input checked="" type="checkbox"/> 5
12	التعابير الاجتماعية تعزز الاحترام	<input checked="" type="checkbox"/> 5
15	التعابير الخطابية تنظم الأفكار	<input checked="" type="checkbox"/> 4
17	التعابير الإشارية تجعل الشهادة واقعية	<input checked="" type="checkbox"/> 4
20	التعابير الإشارية تعزز الإقناع	<input checked="" type="checkbox"/> 5

Appendix E: Sample Interview Excerpt (Case Example)

Participant Response (Basra, Iraq)

1. Can you describe your personal experience with a health product that directly affected your health?
I do not suffer from health issues, but my blood pressure sometimes rises, so I take medication for it.
2. What prompted you to use the product (indications for use)?
High blood pressure.
3. Where were you when you noticed the effect of the product?

At home.
4. When did you first use the product? Be precise (date, time).
A month ago.
5. How long did it take you to notice any effects? Describe the timeframe.
After 4 days, I noticed a difference in my blood pressure.
6. When did you feel the most significant change? Link it to other events.
On the fifth day after I took the medication regularly
7. Who, if anyone, was with you when you first used the product?
My family.
8. Did someone else use the product? How was their experience compared to yours?
No one in my family used it.
9. If you were to recommend this product to someone “here,” how would you describe it to them?
It has no side effects; on the contrary, it is a good medication.
10. Regarding the instructions, which part was the most helpful/confusing?
Based on the doctor’s recommendation and praise.
11. How do you respond when someone asks you, “Why this product and not another?”
The doctor recommended it to me, and I noticed an improvement.
12. How did the opinions of doctors or others affect your decision to use this product?
Yes, it had a significant effect because I trust the doctor.
13. Has your perspective on this product changed over time? How?
No, it has not changed.
14. What features would you like to highlight to someone considering using this product?
It has no side effects.
15. Did you encounter any surprises while using the product? How did you describe them at the time?
It did not cause me any complications and did not affect my health

Appendix F: Sample Interview Excerpt (Case Example)
Participant Response (Basra, Iraq)

1.Can you describe your personal experience with a health product that directly affected your health?
I used a treatment for eczema.
2.What motivated you to use the product (indications for use)?
Eczema on the skin.
3.Where were you when you noticed the product's effect?
At home.
4.When did you use the product for the first time? Please be precise (date, time).
Five months ago.
5.How long did it take you to notice any effects? Describe the timeframe.
Its effect was very fast.
6.When did you feel the greatest change? Connect it to other events.
After three days.
7.Who, if anyone, was with you when you used the product for the first time?
My husband was with me.
8.Did anyone else use the product? How was their experience compared to yours?
Yes, my husband used it because he had eczema on his hands.
9.If you were to recommend this product to someone "here," how would you describe it to them?
Very good, fast-acting, and free of chemicals.
10.With reference to the instructions, which part was most helpful/confusing?
The product instructions were illustrated; it is in the form of an ointment.
11.How do you respond when someone asks, "Why this product and not another?"
Because I tried it and noticed a radical change after using it.
12.How did the opinion of doctors or others affect your decision to use this product?
I did not consult a doctor.

13.Has your view of this product changed over time? How?
For the better, and I rate it as an excellent product.
14.What features would you highlight to someone considering this product?
Fast-acting, can be used on any area of the body, and gentle on the skin.
15.Did you encounter any surprises while using the product? How did you describe them at the time?
I was surprised by its fast effect and excellent quality.

Appendix G: Sample Interview Excerpt (Case Example)

Participant Response (Basra, Iraq)

1.Can you describe your personal experience with a health product that directly affected your health?
I used a stomach treatment.
2.What motivated you to use the product (reasons for use)?
Stomach pain.
3.Where were you when you noticed the product's effect?
At home.
4.When did you first use the product? Please be precise (date, time).
A few months ago, about two months ago.
5.How long did it take you to notice any effects? Describe the timeframe.
Its effect is temporary and quickly disappears.
6.When did you feel the greatest change? Link it to other events.
After one week.
7.Who, if anyone, was with you when you first used the product?
My family.
8.Did anyone else use the product? How was their experience compared to yours?
No.
9.If you were to recommend this product to someone "here," how would you describe it?
Fast-acting but short-lasting.
10.Referring to the instructions, which part was most helpful/confusing?

They were in both Arabic and English; the language was clear, especially the part explaining how it works.
11.How do you respond when someone asks, “Why this product and not another?”
Because the doctor prescribed it for me.
12.How did the opinion of doctors or others influence your decision to use this product?
Certainly, influenced me.
13.Has your view of this product changed over time? How?
Good and not good; my evaluation is that it is average.
14.What features would you highlight to someone considering this product?
Initially, it has no side effects.
15.Did you encounter any surprises while using the product? How did you describe them at the time?
No.

Appendix (H)

Table 1. Pragma-Discoursal Analysis of Eczema Treatment Testimonial (Case 8)

Study Objective	Deixis Category	Cited Expressions	Function in Testimonial
1. Identify and classify deictic expressions used in patient testimonials	Person Deixis	“I used a treatment” “My husband” “He had eczema”	First-person and relational pronouns used to narrate personal and shared experience

	Spatial Deixis	“At home”	Locational markers situating the experience in domestic and institutional settings
	Temporal Deixis	“Five months ago,” “After three days”	Time-based references establishing treatment onset and rapid improvement
	Social Deixis	“My husband” “I did not consult a doctor”	Relational terms indicating shared use and absence of professional influence
	Discourse Deixis	“Very good, fast-acting, and free of chemicals” “I noticed a radical change” “I rate it as an excellent product”	Textual references linking evaluation, transformation, and recommendation
2. Examine the discursive role of deixis in enhancing relatability and persuasion	Person & Temporal	“I used a treatment” “After three days”	Personal experience and rapid recovery timeline evoke realism and relatability

	Social & Discourse	“My husband used it too” “I noticed a radical change”	Shared experience and strong evaluative framing enhance persuasive appeal
3. Investigate how deixis affects perceived authenticity and trust	Person & Temporal	“I was surprised by its fast effect” “Five months ago”	Specific, time-bound personal account reinforces credibility and emotional sincerity
	Social Deixis	“I did not consult a doctor” “My husband was with me”	Emphasizes autonomy and shared domestic validation, enhancing testimonial authenticity
4. Determine which deixis types most influence testimonial persuasiveness	Person Deixis	Dominant throughout testimonial	Central to narrative structure and experiential framing
	Temporal Deixis	Used to mark onset, rapid effect, and sustained evaluation	Supports believability and experiential continuity

Appendix (I)

Table 2. Pragma-Discoursal Analysis of Stomach Treatment Testimonial (Case 31)

Study Objective	Deixis Category	Cited Expressions	Function in Testimonial
1. Identify and classify deictic expressions used in patient testimonials	Person Deixis	“I used a stomach treatment” “My family” “The doctor prescribed it”	First-person and relational pronouns used to narrate personal experience and social context
	Spatial Deixis	“At home” “Here” (implied in Q9) “European Center”	Locational markers situating the experience and treatment setting
	Temporal Deixis	“A few months ago,” “After one week”	Time-based references establishing chronology and perceived effect duration
	Social Deixis	“My family” “The doctor”	Relational terms indicating social presence and medical authority

	Discourse Deixis	“Because the doctor prescribed it” “Certainly, influenced me” “Good and not good”	Textual references linking justification, evaluation, and evolving stance
2. Examine the discursive role of deixis in enhancing relatability and persuasion	Person & Temporal	“I used a stomach treatment” “After one week”	Personal account and recovery timeline evoke realism and relatability
	Social & Discourse	“The doctor prescribed it” “Certainly, influenced me	Medical authority and social influence used to justify product choice
3. Investigate how deixis affects perceived authenticity and trust	Person & Temporal	“Its effect is temporary and quickly disappears” “A few months ago”	Specific, time-bound personal account increases credibility despite moderate evaluation
	Social Deixis	“My family” “The doctor”	Presence of others and expert guidance enhance testimonial responsibility and trust

4. Determine which deixis types most influence testimonial persuasiveness	Person Deixis	Dominant throughout testimonial	Central to narrative structure and experiential framing
	Temporal Deixis	Used to mark onset, peak, and decline of effect	Supports believability and perceived authenticity of health experience

Appendix (J)

Table 3. Pragma-Discoursal Analysis: Heart Treatment Testimonial (Case 37)

Study Objective	Deixis Category	Cited Expressions	Function in Testimonial
1. Identify and classify deictic expressions used in patient testimonials	Person Deixis	“I used heart treatment” “My nephew” “He was a well-known specialist”	First-person and relational pronouns used to narrate personal experience and social context
	Spatial Deixis	“At home”	Locational markers situating the experience in domestic and institutional settings

	Temporal Deixis	“In 2022” “Three years ago” “Within five to six months” “During those months”	Time-based references establishing treatment onset, duration, and peak effect
	Social Deixis	“My nephew” “The doctor” “Well-known specialist”	Relational and authority figures indicating social presence and medical credibility
	Discourse Deixis	“It was a good medication” “I noticed a positive effect” “No, it has not changed”	Textual references linking evaluation, outcome, and consistency over time
2. Examine the discursive role of deixis in enhancing relatability and persuasion	Person & Temporal	“I had heart pain” “Within five to six months”	Personal suffering and recovery timeline evoke realism and relatability
	Social & Discourse	“The doctor prescribed it” “He was a well-known specialist”	Medical authority used to justify product choice and enhance persuasive appeal

<p>3. Investigate how deixis affects perceived authenticity and trust</p>	<p>Person & Temporal</p>	<p>“No, it has not changed” “During those months”</p>	<p>Consistent, time-bound personal account reinforces credibility and long-term trust</p>
	<p>Social Deixis</p>	<p>“Yes, it had an impact” “My nephew”</p>	<p>Social presence and expert influence enhance testimonial responsibility and authenticity</p>
<p>4. Determine which deixis types most influence testimonial persuasiveness</p>	<p>Person Deixis</p>	<p>Dominant throughout testimonial</p>	<p>Central to narrative structure and experiential framing</p>
	<p>Temporal Deixis</p>	<p>Used to mark onset, progression, and sustained evaluation</p>	<p>Supports believability and experiential continuity</p>