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## INTERACTIVE METADISCOURSE MARKERS IN INFORMED CONSENT TEMPLATES FOR DENTAL TREATMENT

***Purpose*** *of this study is to define and examine interactive metadiscourse markers that navigate the patients through the texts and help them to interpret the texts of informed consent for dental treatment in a more precise manner.*

***Methodology****. Twenty original informed consent templates for dental treatment used in the USA healthcare settings authorized to render oral and dental services were analyzed in this descriptive and exploratory study. The texts were also processed by Text inspector, a professional web tool, to analyze metadiscourse markers. The identification and categorization of the metadiscourse in the informed consents is grounded on the metadiscourse model of K. Hyland.*

***Novelty.*** *Informed consent is a genre in which awareness of the audience is critical in capturing rhetorical objectives and metadiscourse helps to establish relationship between writer, reader, socio-cultural context, and specific communicative situation. This study, the first attempt to investigate metadiscourse markers in English informed consent templates, has demonstrated that the interactive metadiscourse primarily focused on assistance on the reader's text navigation and text organization based on the writer's awareness of the audience, are somewhat superior over the interactional ones aimed at getting the readers involved in the text.*

***Results.*** *Interactive metadiscourse in the informed consent templates are predominantly represented by transitional markers, code glosses and frame markers in combination with visual elements. The endophoric markers and evidentials are the least used interactive metadiscourse devices. This can be explained by communication purposes and strategies of this genre to organize health-related information into a meaningful structure for the readers, and direct them to the right voluntary and educated decision making.*

***Key words:*** *metadiscourse, interactive markers, informed consent, transitional markers, code glosses, frame markers.*

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# МАРКЕРИ ІНТЕРАКТИВНОГО МЕТАДИСКУРСУ В ФОРМАХ ПОІНФОРМОВАНОЇ ЗГОДИ НА СТОМАТОЛОГІЧНЕ ЛІКУВАННЯ

***Мета*** *цього дослідження – виявити та проаналізувати маркери інтерактивного метадискурсу, які допомагають орієнтуватися пацієнтам у текстах інформованої згоди на стоматологічне та сприяють більш точній їх інтерпретації.*

***Методологія.*** *Матеріалом цього емпіричного дослідження якісного типу слугували двадцять оригінальних форм інформованої згоди на стоматологічне лікування, які використовуються в медичних установах США. Тексти також були опрацьовані за допомогою Text Inspector, професійного веб-інструменту, для аналізу маркерів метадискурсу. Ідентифікація та категоризація метадискурсу в текстах ґрунтується на моделі метадискурсу К. Хайленда.*

***Новизна.*** *Інформована згода – це жанр, для якого фактор адресата є одним із визначальних і критично важливим при доборі відповідних риторичних засобів, а метадискурс допомагає встановити взаємозв'язок між автором, адресатом, соціокультурним контекстом та конкретною комунікативною ситуацією. Запропоноване дослідження продемонструвало кількісну перевагу маркерів інтерактивного метадискурсу, який зосереджений на допомозі читачеві в навігації по складному за структурою та змістом тексту та на оптимальній організації тексту, яка ґрунтується на обізнаності автора з цільовою аудиторією.*

***Висновки.*** *Інтерактивний метадискурс у формах інформованої згоди на стоматологічне лікування переважно представлений перехідними логічними конекторами (logical connectives), маркерами перефразування (code glosses) та марками структурування (frame markers) у поєднанні з візуальними елементами. Це, очевидно, зумовлено комунікативними цілями жанру інформованої згоди – інформувати, раціонально передати спеціальне знання, причому унаслідок статусної нерівності адресата та адресанта виникає комунікативна асиметрія, яка посилює комунікативну роль та соціальну відповідальність останнього.*

***Key words:*** *мета дискурс, інтерактивні маркери, інформована згода, логічні конектори, маркери перефразування, маркери структурування.*

**Introduction.** Given the fact that professional communication is becoming a highly predominant type of social interaction globally, professional discourses have been recently put in the focus of the complex interdisciplinary study by linguistic and social sciences researchers. The medical and healthcare discourses encompass sets of genres for different purposes within the areas of intra-professional, doctor-lay person, and inter-professional communication that reflect discourse community standards and conventions in a particular socio-cultural context.

Although many medical and healthcare-related genres have been extensively explored (research articles, review articles, case reports, doctor-patient interaction in oral and online communication, etc.), the genre of informed consent that plays a critical legal, ethical, and clinical role in healthcare settings has not been sufficiently elucidated yet. There have been a few reports of Ukrainian and foreign researchers dedicated to their generic peculiarities, rhetoric and linguistic characteristics, and issues on their readability (Костенко, 2021; Darriba, 2018; Kostenko et al., 2021).

Informed consent is viewed as a both the doctor-patient communication aimed at deciding between all treatment options or rejecting them, and a bilateral document that records the will and decision of a patient to receive a particular dental treatment and serves as an integral component of overall patient care worldwide (Hall et al., 2012; Mandava et al., 2012; Reid, 2017). Therefore, informed consent is a genre in which awareness of the audience is critical in capturing rhetorical objectives. In the context of the clinical decision-making process, it is particularly essential to emphasize that interlocutors "do not produce a piece of text or an oral message to simply communicate and/or exchange information; rather, they look for the ways to ensure that the flow of communication has been successful and the reader can understand the propositions, or the message, offered by the authors" (Amiryousefi and Eslami, 2010, pp. 159–160). Therefore, writers (healthcare professionals, legislators, healthcare managers) must organize health-related information into a meaningful structure for the readers, as well as direct them toward the right voluntary and educated decision making.

**Literature review.** Using language "to identify oneself as a member of a socially meaningful group, to signal a socially meaningful "role," or to signal that one is filling a social niche in a distinctively recognizable fashion" (Gee, 2008, p. 161) means performing discourse, which consists of two distinct yet connected components. The first element is the propositional content, and the second consists of the language tools that enhance the communicative efficiency and effectiveness of the factual message, and known as metadiscourse (Sanford, 2012, p. 4).

Z. Harris coined the term "metadiscourse" in order to better express the pragmatic relationship between writer and reader several decades ago (Beauvais, 1989). A. Crismore defined metadiscourse as "the linguistic material intended to help the reader or listener organize and interpret information in texts" (Crismore et al., 1993, p. 43), but does not add any information to the propositional content. The use of metadiscourse in writing and speaking embodies the concept that communication is more than just the exchange of information, facts, and figures (Hyland, 2005; Cuaves-Alonso, 2021). Some researches add that metadiscourse is the linguistic manifestation of the author in the text (Farahani, 2020) and "it represents writers' attempts to present and negotiate propositional information in ways that are meaningful and appropriate to a particular disciplinary community" (Hyland, 2004, p. 136). Metadiscourse also promotes logical appeals when it explicitly links ideas and arguments; it implies credibility of the writer's authority and competence; and it signals respect by acknowledging the reader's viewpoint (Hyland, 2005). According to S. G. Sanford, it is a key social communication construct that "allows writers to influence reader's understanding of the text as well as the author's attitude toward the context and the audience" (Sanford, 2012, p. 10). Thus, in a broad sense, metadiscourse is a functional category that encompasses the variety of interpersonal and cohesive linguistic elements, which authors use to relate text to the socio-cultural context, and the specific communicative situation.

Metadiscourse markers are rhetorical devices, which indicate that the writer or reader are present in the text by either referring to the organization of the text or remarking on the text in other ways (Hyland, 2005); they are critical to text creation because help to keep the text flow smooth and reader-friendly and thus guide readers to organize and interpret content in a way, which the authors expect. Although there have been many reports elucidating metadiscourse markers in texts of academic genres, e. g. in research articles (Hyland and Tse, 2004; Farhokhi, 2009; Gholami, 2016; Nugrahani, 2020), book reviews (Soleimani, 2020), students essay writing (Sanford, 2012; Livingstone, 2019; Farahani, 2020; Jomaa, 2019), instructional manuals (J. Herriman, 2022), to our knowledge, there exists few studies devoted to metadiscourse in informed consent forms for treatment (Костенко, 2021; Kostenko et al., 2021).

Medical texts are often hard for lay people to be understood: they need to explain specialized, often complicated technical information to readers of the general public who usually have very little or no background knowledge of health-related issues at all (Ordonez-Lopez, Edo-Marza, 2016). Moreover, the complexity of information and its high density often results in a greater complexity of grammatical forms and lexical units (Kostenko et al., 2021). There is, therefore, a risk that writers may fail to communicate successfully. Informed consent is used as "an information highway" in clinical settings to explain the character of proposed treatment, the risks and benefits of the proposed procedure, the potential advantages and disadvantages of no treatment, alternative treatment strategies, their risks and benefits, the potential for a successful outcome, the estimated recuperation time (Kadam, 2017, p. 148). In order to ensure the effectiveness of informed consent documents, informed consent templates should be designed taking into account an average patient, who presumably has 8th grade reading level according to International standard classification of education (Barro, 2013), but, in fact, most informed consent templates are written at a 10th grade reading level or even higher (Darriba, 2018; Kostenko et al., 2021). To meet the patients' needs, sometimes rather complicated special information should be presented in a sufficient amount to make an informed choice (*the Gricean maxim of quantity*) and in a reader-friendly way that is not ambiguous, confusing or incorrect (*the Gricean maxim of manner)* (Grice, 1975). Using metadiscourse effectively, i. e. to consider the needs of the target audience, to organize the content accordingly and to guide readers through the text, is crucial for successful doctor / patient communication.

The **purpose** of this study is to define and examine interactive metadiscourse markers that navigate the patients through the texts and help them to interpret the texts of informed consent for dental treatment (IC) in a more precise manner.

**Materials and methodology.** This study is descriptive and exploratory in nature as it describes the phenomena as they occur naturally in the texts. The identification and categorization of the metadiscourse in the IC texts is grounded on the Hyland's metadiscourse model (Hyland, 2005, p. 49), summarized in Table 1.

We investigated a corpus of 20 original informed consent templates for dental treatment used in the USA healthcare settings authorized to render oral and dental services (New York City Metropolitan Hospital Center, Alliance for Dental Care), and those given by medical insurance companies (Dentists Benefits Insurance Company (DBIC), MedPro Group). The templates were searched for using Google search engine and downloaded from internet sources Open Dental Software, American Dental Association dental records reference, Delta Dental Incorporation.

The IC texts were also processed by *Text inspector*, a professional web tool, to analyze metadiscourse markers. This tool is designed to recognize fourteen categories of metadiscourse markers and based on the types identified by S. Bax et al. (Bax et al., 2019), whose classification, in turn, built upon the Hyland's taxonomy (Hyland, 2005). Some categories identified by K. Hyland, are subdivided into subcategories by S. Bax et al., e. g. frame markers fall into announce goals (*the aim, I wish, here I will*), topic shifts (in *regards to, to move on, to look more closely*), label stages (*thus far, on the whole, to repeat*), and sequencing (*first, second, finally, three, four*); transitional markers by Hyland's taxonomy are redesignated as logic connectives *(and, or, so, therefore, thereby*). The findings of the text analysis produced by *Text inspector* were represented in bar charts (Photo 1). We examined metadiscourse devices related to the structure of the paper as a whole.

In addition, we examined visual categories such as framing, i. e. distinguishing sections of text by frame lines, spacing, fonts (type and size). These visual guides are considered as interactive metadiscourse by D'Angelo (D'Angelo, 2018).

**Results and Discussion.** The IC texts were processed by Text Readability Consensus Calculator (Klein, 2003; Xu. 2021), a web tool, applying 7 popular readability formulas to calculate the text difficulty of a sample text. Nearly all templates were assessed as "*difficult to read; college level*" that emphasizes the importance of thorough selection of metadiscourse devices to assist readers and thus to promote better access to health information. The average word count of the IC texts is 820 words, but can range from 540 to 1100 words that can be explained by the varying complexity of dental procedures, for example, IC templates for invasive surgical interventions (*gum surgery, crown lengthening, dental implant placement*) are longer and more complicated in the content compared with IC templates for tooth restoration with composite fillings. IC templates typically consist of 6–10 structural blocks, each developing a single topic out of the most relevant issues underlying the communicative situation of engaging patients in "meaningful discourse in an effort to optimize patient understanding of diagnoses and treat-

Table 1

**Classification of metadiscourse by K. Hyland**

| Category | Functions | Examples |
|---|---|---|
| **Interactive** | **Help to guide the reader through the text** | **Resources** |
| Transitional | Indicates relations between main clauses | in addition; but; thus; and; |
| Frame markers | Discourse acts, stages and sequences | finally; to conclude; |
| Endorphic markers | Indicates information in other part of text | noted above; see Fig; |
| Evidentials | Indicates information in other sources | according to X; Y states; |
| Code Glosses | Elaborates definitions of words or phrases | namely; e. g.; such as; in other words |
| **Interactional** | **Involves the reader in the text** | **Resources** |
| Hedges | Withholds commitment and open dialogue | might, perhaps possible |
| Boosters | Indicates certainty or close dialogue | in fact, definitely |
| Attitude markers | Express writer's attitude to proposition | arguably, unfortunately |
| Self-mentions | Explicit reference to author | I, we, my, me, our |
| Engagement Markers | Explicitly builds relationship with reader | you can see that, note |

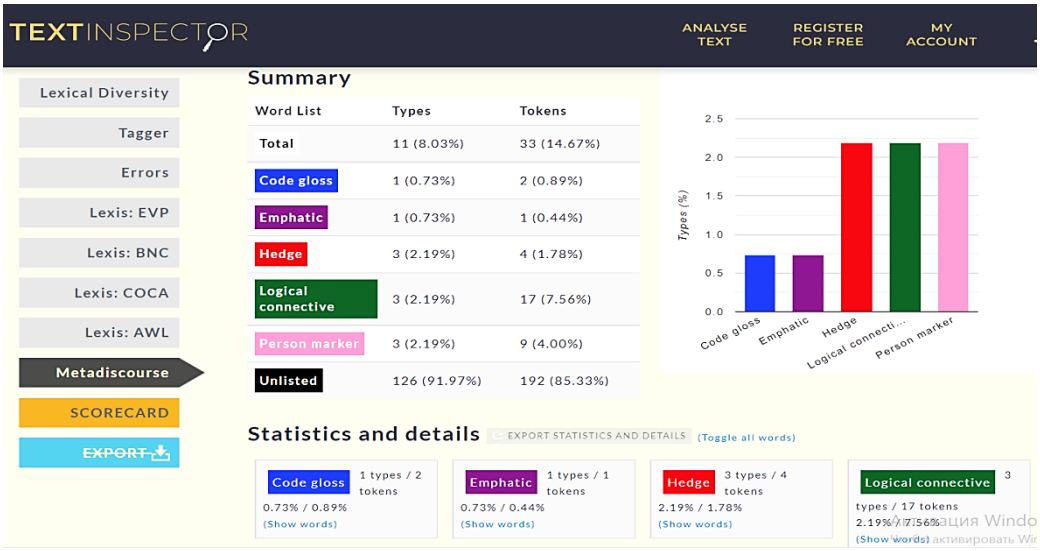



**Photo 1.**

ments, including their rationale, risks, benefits, goals, and alternative treatment options" (Reid, 2017, p. 79).

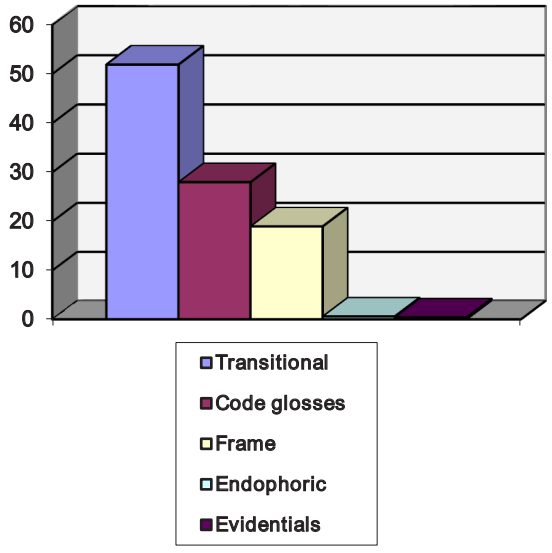
In accordance with the research purpose, we analyzed the IC texts using the frequency count of metadiscourse markers by Hyland's taxonomy per document and then compared the findings obtained by applying *Text instructor*. The difference consists in the following: the drawback of *Text instructor* is its insensitivity to typographic markers like parentheses, which can be seen in the IC templates *(Example 1)*, to numbers (not in words) or bullet points used as frame markers, and its inability to differentiate between homonyms last (verb) and last (adjective, adverb) *(Example 2)*, which serves as a frame marker of sequencing, therefore, this should be taken into account during the analysis.

*(1) A crown, bridge, veneer (cosmetic cover), natural crown, a dental restoration or my natural tooth may break or crack because of the root canal treatment* (IC for Root Canal Treatment).

*(2) Old aligners will be discarded after one year from your last appointment* (IC template for aligner orthodontic treatment). *Although good results are expected, the doctor has not given me any guarantee that the proposed treatment will be successful <...>, or that it will last for any specific length of time* (IC for composite fillings).

The findings obtained demonstrate that the average percentage of metadicourse per document makes up 12.72 %. The interactive markers (6.8 %) that assist the readers to navigate through the text and related to what Halliday called the textual metafunction are slightly more frequently used than interactional markers (5.92 %), dealing with the expression of the opinion of the writers, and their relationship and interaction with the readers and performing the interpersonal metafunction by Halliday (Gillaerts and Van de Velde, 2010, p. 130). Table 2 below shows the types of interactive discourse markers in the IC texts, and the total frequency of their occurrence.

Table 2




Of all interactives, the majority (53.9 %) is represented by transitional markers (logical connectives), which express semantic relations between main clauses. They include mainly conjunctions as a rich set of internal devices and mark contrastive (*but, although, however, nontheless*), additive (*and, also*), or comparative (or, while) steps in

the texts *(Example 3)*. Logical connectors are also represented by adverbs as causative connectors or connectors to introduce conclusion or result (*thus, therefore, thereby*), etc. (*Example 4)*.

(3)*Replacement of missing teeth may be necessary to prevent the drifting of adjacent and / or opposing teeth to maintain function, or for cosmetic appearances* (IC for tooth extraction).

(4)I *accept and understand that denture (partial or full) treatment results are subjective; thus, the outcome of my Treatment Plan may not completely meet my expectations* (IC – Removable Prosthodontics).

Code glosses are the second most frequent interactive markers (28 %) in the IC templates. Interesting, that this result is in line with results reported by J. Herriman, who investigated metadiscourse in English instruction manuals (Herriman, 2022). Code glosses in IC text and instructional manuals are used to provide explanatory information that reflects the chief purpose of both genres "to explain technical information as clearly and as efficiently as possible while taking into consideration the needs of the readers to find the information quickly" (Herriman, 2022, p. 129). In other words, code glosses serve as a transition from professional technical language to common language. According to K. Hyland, code glosses fall into two general categories: reformulation (subdividing into expansions and reductions), and exemplification (Hyland, 2007). The first category has been found to appear more often in IC texts, and is typically represented by explaining or replacing difficult technical words with words accessible to patients *(Example 5)*, and by specification, which adds details that constrain propositional interpretation *(Example 6)*.

(5) *I understand that* ***periodontal procedures*** *(treatment involving the gum tissues and other tissues supporting the teeth) include risks and possible unsuccessful results from such treatment* (IC: Endodontic (Root Canal) Treatment). *Teeth may become* ***impacted*** *(trapped below gums or bone), fail to erupt, or* ***ankylosed*** *(fused to bone), which may require extraction* (IC for Root Canal Treatment).

(6)*Keep anything sharp from entering the wound (crunchy food, toothpicks, eating utensils)* (IC for tooth extraction*). I have told the dentist and/or his/her staff about any pertinent medical conditions I have, allergies (especially to medications) or medications I am taking* (IC for Crown Lengthening Surgery).

Exemplifying code glosses *(Example 7)* are somewhat inferior to reformulation ones.

(7)*Materials such as biodentine can help where nerve near nerve exposure is found* (IC for Root Canal Treatment). I *also acknowledge that during treatment it may be necessary to change or add procedures because of conditions found. For example, root canal therapy following routine restorative procedures* (IC for General Dental Procedure).

Thus, code glosses over the IC texts pinpoint where readers require assistance in interpreting complex notions, where more explanation or specificity is essential, where clarification or examples are required.

Frame markers rank the third position, making up 18 % out of all interactives in the IC texts, and are employed to provide framing information, indicate text boundaries or textural structures. Frame markers are mainly referred to sequences, text stages, or topic shifts (*first, then, next*) to keep the flow smooth *(Example 8)*. But, from our analysis, subcategory of frame markers predominantly serve to declare discourse goals, e. g. I *would like to, my purpose is, for the sake, I will (Example 9)*.

(8)*First, you will be presented with the optimum treatment for your particular dental needs* (IC for General Dental Procedure). *Please read the following carefully then sign below to consent for placement of the dental implant/s as detailed: <…>* (IC: Dental Implants).

(9)T*he purpose of crown lengthening surgery is to provide my general dentist or prosthodontist better access and visualization <…>. I will need to come for post-op appointments following my surgery* (IC for Crown Lengthening Surgery). *I wish to proceed with treatment by Dr.* _____ (IC for General Dental Procedure).

Underlying purpose setting contributes to explicit discourse framing to make it coherent, intelligible and persuasive to the target audience. Hyland et al. states that explicitly stating one's purposes is a powerful rhetorical tool (Hyland and Jiang, 2018). An even despite the obvious disparity in the doctor – patient communicative status resulted first and foremost from special knowledge background, announcing discourse goals from both parties of informed consent dialogue demonstrates the shift from physician-centred model "you're the doctor; you decide" to more patient-centred

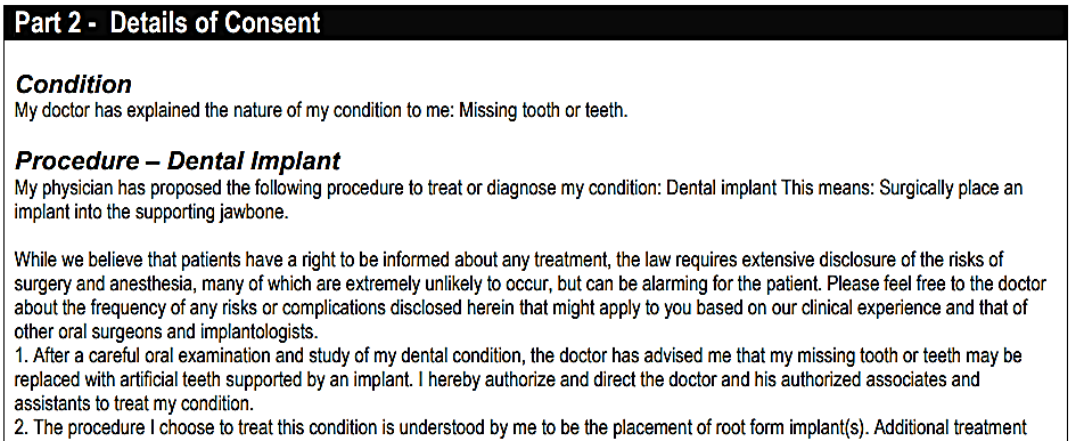
and cooperative approaches that implies patient's involvement and accepting responsibility for the consequences of the health decision as well.

The role of visual (graphic) elements in constructing the meaning of different texts is being extensively discussed now. In this study we share the view of E. Kumpf (2000), C. Mancini (2005), G. Kress (2006), J. Herriman (2022) on non-verbal elements as framing metadiscourse because they represent an important way by which authors structure their discourse for particular readers and guiding their thinking in the direction the author wishes to flow. E. Kumpf points out that visual metadiscourse "complements textual metadiscourse in emphasizing the necessity of rhetoric in technical communication and writers need to consider these visual features as they also constitute the text" (Kumpf, 2000, p. 401–404).

The IC texts contain an adequate number of visual features to support readability and macrostructural consistency. All of the texts are segmented into short sections and paragraphs, which are separated by spacing or lines. Most of the sections are accompanied by headings, indicating the topic of a section (Photo 2). The text segmentation is often supported with numbering pointing out the order in which the text should be read, or bullet pointing. Typographical resources, including font, print size varies throughout the IC templates. Bold print, italics, capitalization and underlining as well as enlarged print size are used not only for headings but also to draw attention to certain information, which is considered as especially important for patients. The text segmentation and visual elements guide the patient's reading, provide rapid access to particular structural components of the text for the revision, and develop connections between the segments.

The endophoric markers, which refer to information in other parts of the text to provide additional information to the reader, have been found as least represented, 0.7 %; evidentials, which refer to sources of textual information out of present text, also make up a negligible share of 0.4 %.

**Conclusion and future prospects.** Informed consent is a genre in which awareness of the audience is critical in capturing rhetorical objectives, therefore writers (healthcare professionals, legislators, healthcare managers) must organize health-related information into a meaningful structure for the readers, as well as direct them toward the right voluntary and educated decision making. It is metadiscourse that helps to establish relationship between writer, reader, socio-cultural context, and a specific communicative situation; it facilitates the reader in organizing, interpreting, and evaluating information in a text. This study of metadiscourse markers in a small corpus of English informed consent templates for dental treatment has found that the interactive metadiscourse primarily focused on assistance on the reader's text navigation and text organization based on the writer's awareness of the audience, are somewhat inferior to the interactional ones aimed at getting the readers involved in the text. Interactive metadiscourse in the informed consent templates are predominantly represented by transitional markers (logical connectives), code glosses and frame markers in combination with visual elements (text segmentation, font, size, capitalization). The endophoric markers and evidentials are the least used interactive metadis-



**Part 2 - Details of Consent**

***Condition***

My doctor has explained the nature of my condition to me: Missing tooth or teeth.

***Procedure – Dental Implant***

My physician has proposed the following procedure to treat or diagnose my condition: Dental implant This means: Surgically place an implant into the supporting jawbone.

While we believe that patients have a right to be informed about any treatment, the law requires extensive disclosure of the risks of surgery and anesthesia, many of which are extremely unlikely to occur, but can be alarming for the patient. Please feel free to the doctor about the frequency of any risks or complications disclosed herein that might apply to you based on our clinical experience and that of other oral surgeons and implantologists.

1. After a careful oral examination and study of my dental condition, the doctor has advised me that my missing tooth or teeth may be replaced with artificial teeth supported by an implant. I hereby authorize and direct the doctor and his authorized associates and assistants to treat my condition.
2. The procedure I choose to treat this condition is understood by me to be the placement of root form implant(s). Additional treatment

**Photo 2.**

course devices in the informed consents. This can be explained by communication purposes and strategies of this genre to communicate special information in the most explicit manner thus using more reader-oriented tone.

The results obtained might have practical implications for healthcare settings prompting them to create more patient-friendly documents, and for medical ESP classes providing deeper understanding of the medical professional discourse.

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**ILLUSTRATION SOURCES**

38. Informed Consent: Dental Implants. URL: https://internationaldentalimplantassociation.com/downloads/Consent-Implant.pdf

39. Informed Consent Endodontic (Root Canal) Treatment. URL: http://absolutdent.com/wp-content/themes/biznizz/images/pdf/Informed%20Consent%20Endodontic%20(Root%20Canal)%20Treatment.pdf

40. Informed consent for composite fillings. URL: http://absolutdent.com/wp-content/themes/biznizz/images/pdf/Informed%20Consent%20for%20Composite%20Fillings.pdf

41. Informed Consent for Crown Lengthening Surgery: URL: http://www.denver-perio.com/Portals/11/Documents/P%20CONSENT%20CROWN%20LENGTHENING.pdf

42. Informed Concent for General Dental Procedure. URL: https://www.arlingtondentalcenter.org/wp-content/uploads/2013/05/arlington-dental-center-new-patient-forms-2014.pdf

43. Informed Consent for Root Canal Treatment. URL: https://willowdental.com/wp-content/uploads/2021/04/Informed-Consent-for-Endodontic-Treatment.pdf

44. Informed consent for tooth extraction. URL: https://www.smilecliniq.com/wp- content/uploads/2018/12/14.-XLA-Consent.pdf

45. Informed Consent – Removable Prosthodontics – Dentures (Full, Partial, Immediate). URL: https://www.adc4smiles.com/assets/docs/informedconsentremoval.pdf

46. Informed consent template for use in connection with patients undergoing clear aligner orthodontic treatment. URL: https://www.pelicandentalrb.com/wp-content/uploads/2020/11/ClearAlignerConsent-Form.pdf