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Irena Aleksić-Hajduković*
University of Belgrade, School of Dental Medicine
https://orcid.org/0000-0002-1884-4784

Gordana Vekarić**
University of Belgrade, Faculty of Sport and Physical Education
https://orcid.org/0000-0002-7219-2043

Danka Sinadinović***
University of Belgrade, Faculty of Medicine
https://orcid.org/0000-0002-3643-5917

PATIENT-CENTREDNESS IN DENTAL STUDENTS' EXPLANATIONS: AN ANALYSIS OF MODAL HEDGES IN ELAN-ANNOTATED ROLE PLAYS

Abstract
The present study examines a corpus composed of 10 role plays by analysing the instances of modal hedges in line with the taxonomy provided in Trbojević-Milošević's (2004) study of epistemic modality. The audio recordings of dentist-patient role plays were first annotated using the ELAN annotation software developed by the Max Planck Institute for Psycholinguistics. Afterwards, the usage of epistemic modal verbs, non-factual verbs, modal adverbs, modal expressions containing epistemic nouns and adjectives, and semi-modals was analysed. The findings of this research are expected to indicate whether ESP students tend to

* irena.aleksic@stomf.bg.ac.rs
** gordana.vekaric@fsfv.bg.ac.rs
*** danka.sinadinovic@med.bg.ac.rs

adhere to the patient-centred approach and hedge their statements properly, as well as to serve as guidance in terms of *nurturing hedges in the ESP curriculum*, as Hyland (1996) put it.

Keywords: healthcare communication, ESP, epistemic modality, modal hedges, role play

1. Introduction

1.1 Patient-centred communication

Both *praxis literature*[1] and *discourse literature*[2] have approached patient-centeredness (PC) from several different aspects having in mind its significance and its impact on treatment outcomes and patient satisfaction.

Within praxis literature, patient-centred care has been defined as "care provision that is consistent with values, needs, and desires of patients and is achieved when clinicians involve patients in healthcare discussions and decisions" (Mead & Bower 2000, as cited in Constand et al. 2014: 1). The Institute of Medicine (2001) highlighted the necessity of respecting patients' needs, preferences, and values, and responding to them in connection with clinical decisions (Kwame & Petrucka 2021: 1). The aim of patient-centred care (PCC), which has been extensively researched by both linguists and medical professionals, is to enable patients to take an active role in their own care (Reynolds 2009: 133). Furthermore, Reynolds (2009: 133) suggests that health care providers can achieve this goal through cultivating good communication skills and addressing patients' needs effectively. Gorli et al. (2017) see patient-centeredness as a collective achievement arranged between patients and healthcare providers which includes social practices and relationships in various settings and contexts.

[1] Numerous studies have explored medical encounters from the perspective of medical practice. They are mostly concentrated on the balance of power between doctors and patients and do not take discourse into consideration in their analyses but focus on the outcomes of doctor-patient communication and following or disregarding the doctor's recommendations. Such studies are usually categorised as *praxis literature* (Ainsworth-Vaughn 2001: 453-454).

[2] *Discourse literature* contains studies that analyse conversation (i.e., talk) itself, concentrating exclusively on the control over discourse from the aspect of conversation analysis, sociolinguistics, the ethnography of communication (Ainsworth-Vaughn 2001: 453–454), as well as critical discourse analysis (CDA).

Patient-centred communication, which is also referred to as *person-centred* or *client-centred communication*, denotes a process that enables patients and their families to become active negotiators and decision-makers when it comes to their care needs (McCabe 2004, as cited in Kwame & Petrucka 2021: 2). Adams (2013: 30) emphasised the need to adopt patients' framework of belief so as to promote more effective communication (Kleinman 1975; McWilliam et al. 2000), considering this to be the premise of the patient-centred approach. Furthermore, Adams (2013: 31) has called attention to several important qualities of patient-centred medicine (PCM): it is the key factor to high-quality healthcare (Epstein et al. 2005), it focuses on both biological and psychosocial aspects of illness (Lipkin et al. 1984), and it relies on communication that respects patients' preferences (Stewart 1995).

Focusing on the analysis of doctor-patient communication within medical encounters, discourse literature has recognized the importance of a patient-centred interview (Mishler 1984: 41–43) and the necessity to include the patient's perspective in a relationship-centred medical model (Drew 2001; Stivers & Heritage 2001; Roter 2000; Thompson 1998, as cited in Cordella 2004: 27). Mishler (1984: 95) decided to investigate what would happen if patients and their stories were placed at the centre of discourse instead of keeping doctors as central figures. He concluded that coherence would be replaced by discontinuity and predicted the struggle of voices instead of the dominance of one (i.e., the doctor's) voice. The usually dominant voice of medicine that is characterised by the doctor's question – patient's response – doctor's assessment / new question series, would be interrupted by the voice of the lifeworld that was based on personal and social contexts of patients' problems, making the entire experience of medical care more humane. In other words, while science and an interest in technical details dominate the voice of medicine, the voice of the lifeworld involves experiences, problems, feelings, and personal attitudes – patients have stories to tell instead of answering doctors' precise questions (Mishler 1984: 95–104). In other words, doctors and patients do not perceive their patients' health problems in the same way – while doctors treat them like all other problems they have had in their professional career, the patients consider them to be serious and significant and are dissatisfied with a lack of empathy and understanding (Heritage 2004: 175–179). Along the same line, the adoption of empathic techniques (eye contact, non-verbal communication, paraphrasing, listening, making encouraging replies,

using semi-verbal utterances, etc.) was suggested (Bensing 1995; Ong et al. 1995, as cited in Cordella 2004: 27). Charles et al. (1997) advocated the adoption of the shared decision-making model which suggested the involvement of both doctors and patients in the consultation, bilateral sharing of information, reaching a consensus about the treatment, and reaching an agreement on the implementation of the treatment.

Both discourse and praxis literature agree that ineffective communication between doctors/health professionals and patients may result in poor outcomes for patients (Watson & Gallois 1999: 167), affecting patient satisfaction, compliance, and understanding of provided medical information (Ong et al. 1995; Hahn 1995, as cited in Cordella 2004: 28). Patient satisfaction seems to be linked to several things – doctors not being dominant and controlling (Ong et al. 1995), doctors sharing information, showing interest in patients and reassuring them (Watson & Gallois 1999: 172). On the other hand, patients consider medical encounters not satisfying if doctors are not responsive and show no concern (Watson & Gallois 1999: 172), if they use too many technical terms (Hadlow & Pittis 1991, as cited in Cordella 2004: 28), or if they fail to show warmth and consider patients' expectations from the medical encounter (Korsch et al. 1968: 869). As early as the 1960s, the deficiencies of the biomedical model became evident since it focused on the cause, prevention, and management of disease, thereby ignoring its social and psychological dimensions (Fortin et al. 2012: 1). A biopsychosocial model was first introduced by Engel (1977), whereas the 11-step evidence-based interviewing method was suggested by Fortin et al. (2012) in order "to obtain a complete biopsychosocial story" (Fortin et al. 2012: 3).

1.2 Role plays

Teaching English for professional communication is the most important task for teachers of EFL in tertiary institutions (Tarnopolsky 2012: 18) and requires various methods in classes to improve students' language acquisition. Tarnopolsky (2012: 25) advocates that EFL based on modelling extra-linguistic activities and on communication in the target language related to the profession helps achieve the learning outcomes of language modules both in EFL and ESP settings. Given that ESP tertiary students are highly motivated as to profession-related activities (Tarnopolsky 2012: 25), such activities can improve the development of ESP communication

skills in real-life circumstances. At the same time, efficient doctor-patient communication skills have been identified as prerequisites in preparing doctors-to-be for their first encounter with real patients (Luttenberger et al. 2014: 2).

This has imposed new challenges to teachers of English for Medical/ Dental Purposes requiring the deployment of various activities, including role playing professional situations in the target language. Role plays are used as a coherent part of teaching and learning how to provide explanations, which represents a substantial part of dentist-patient communication and affects the patient's health outcome (Luttenberger et al. 2014: 1). According to Tarnopolsky (2012: 29), role plays can be defined as target language communication situations which "…allow for subconscious acquisition of the target language in the process of living the modelled experience". In line with this view, Tarnopolsky (2012: 29) underlines the problem-solving nature as the most important feature of role plays. Therefore, simulation and role plays are used to develop medical students' communication skills and teach them to play the role of a doctor more effectively (Skelton 2008b: 4), while using discipline-specific terminology in a patient/layperson-friendly manner. They prove to be an effective tool within English for Dentistry courses whose objective is to equip "(prospective) dentists with morphosyntactic, discoursal, and pragmatic competencies by focusing on subject-specific terminology, communication, and genre-specific features of the English language, i.e., the lingua franca of 21st century dentistry" (Aleksić-Hajduković 2022: 65).

1.3 Modal hedges and their role in healthcare practitioners' explanations

Explanations are perceived as an essential indicator of the quality of doctor-patient communication in that they convey information which in turn affects decisions on treatment and contributes to building a rapport based on trust and supportiveness (Hagihara & Tarumi 2006: 143). Even though a number of studies have demonstrated the significance of providing and receiving adequate explanations, they are commonly misinterpreted or not understood by patients (Hagihara & Tarumi 2006: 143). It should be noted that Hamasaki et al. (2011) gauged three types of dentist-communicative behaviours and two of these referred to explanations (the level of dentist explanation when it comes to the name and condition of the disease, the

prognosis for the disease, the treatment method, effects, and period, and the treatment prognosis) and dentist explanatory behaviour reflected through asking and answering questions, confirming patient understanding, using plain words, respecting patient privacy, taking time to provide adequate explanations, etc. Accordingly, the authors proposed a hypothesis that "the number of regular patients probably increases when dentists offer a more detailed explanation" (Hamasaki et al. 2011: 278).

Yet, "ambiguity, prevarication, politeness, respect for others – however you want to label it, we talk in riddles a great deal of the time" (Skelton 2008a: 70). Healthcare communication is not void of this phenomenon which has been intriguing both linguistic and medical researchers (Adams 2013; Aronsson & Sätterlund-Larsson 1987; Brookes & Baker 2021; Hanauer et al. 2012; Locher & Schnurr 2017; McCarthy et al. 2012; Mullany 2009; Robins & Wolf 1988; Skelton 2008a).

Referring to a large-scale study conducted by Prof. Paul Baker and Gavin Brookes (2017), the University of Lancaster presented "the largest study ever conducted into feedback from NHS service users". Using corpus linguistics methods, the authors identified interpersonal skills such as politeness, compassion, and a sense of humour as most frequently highlighted by patient evaluations of GP practices, hospitals, dentists, pharmacies, care providers, etc. Additionally, in most cases, the factors recognised as "soft skills" were even more prevailing than the factors pertaining to the standards of care (Brookes & Baker 2017).

Having stressed the importance of providing adequate explanations in healthcare, we will now focus on the role of hedging in healthcare practitioners' (HCPs') explanations. Hyland (1996: 478) defines hedging as any linguistic device whose purpose is to express "a lack of complete commitment to the truth of an accompanying proposition or a desire not to express that commitment categorically." When used to this end, hedging is considered to be functioning as a mechanism for politeness, i.e., as a downtoner reflecting imprecision in order to modify the illocutionary force of an utterance (Holmes 1984; Brown & Levinson 1987: 145–72; as cited in Adams 2013: 212). In other words, Fraser (2010: 206) suggests that "hedging is used to mitigate an undesirable effect on the hearer, thereby rendering the message (more) polite; and to avoid providing the information which is expected or required in the speaker's contribution, thereby creating vagueness and/or evasion." In this sense, hedging commonly embodies modality perceived as "epistemic deixis and the

speaker's commitment to the truth of the proposition as the function of epistemic distance." (Trbojević-Milošević 2012: 73).

Thus, based on Hyland's (1996: 477) remark that "L2 students are rarely able to hedge their statements appropriately", this research aims to explore how L2 students use modal hedges in simulated spoken interactions with their patients within their English for Dentistry course. Their commitment to the propositions as mirrored through the use of modal hedges expressing epistemic possibility in the explanations provided is at the core of this pragmalinguistic research.

Finally, Adams (2013: 212–233) has thoroughly considered the multiple purposes of hedges, whose persuasive potential may be significant for doctor-/dentist-communication since it can affect the decision-making processes, including the treatment modality and diagnostic decisions, for instance:

> Hedges and hesitations make utterances sound as if the speaker is still constructing his/her thoughts, mitigating what might otherwise appear to be an order or instruction. This in turn can have an inclusive effect, promoting solidarity (positive politeness) (Robertson et al 2011). This collaborative effect has also been noted elsewhere, arising from the constraints which such politeness devices place on doctor-patient communication (Aronsson & Sätterlund-Larsson 1987). Hedges are a recognised mechanism for reducing the probability of disagreement. They encourage cooperation (Brown & Levinson 1987). From this perspective, one can see that they too have persuasive qualities.
>
> (Adams 2013: 219)

Hence, the aims of the current research are as follows:

1. To obtain preliminary insights into whether dental students provide explanations in a patient-centred manner in English,
2. To investigate if dental students effectively deploy modal hedges to mitigate the directness in their explanations or as a mechanism of persuasion;
3. To explore future directions for designing course materials that will target the language dental students can use to provide patient-centred explanations in English.

2. Methodology

2.1 The context

English for Dentistry (Advanced) is an elective course focusing on dentist-patient interaction introduced at the School of Dental Medicine, University of Belgrade, in 2020. Apart from acquiring English terminology related to dental medicine, the primary objective of this course is to enable students of dental medicine to communicate with patients effectively by providing instructions and explaining treatment procedures to their patients while incorporating politeness strategies. Role-plays between a dentist and a patient represent a compulsory component of the exam, in addition to an essay on dentist-patient communication which is supposed to introduce them to the literature in the field and set the tone for their role plays. Nonetheless, it should be noted that being enrolled in the 1st year of studies, these students have insufficient content knowledge. For this reason, they are required to prepare two dentist-patient scenarios that will revolve around a certain condition (e.g. impacted third molars), procedure (e.g. root canal treatment), or treatment plan (e.g. placing orthodontic appliances). In this way, each student is assigned the role of a dentist. The preparatory stage of this task includes completing an online questionnaire to inform the teacher about the pairs formed and to grant/deny permission for their contributions to be used for scientific purposes. Due to the pandemic, in 2021 the students were asked to submit audio recordings of their dentist-patient role plays through the Learning Management System for evaluation. A recording was included in the study providing that both students from a pair granted their permission and followed the instructions. In case one student from a pair denied their permission, the recording was automatically excluded.

2.2 The corpus and study design

Due to the above circumstances and criteria, the present study examined a corpus composed of 10 role plays by analysing the instances of modal hedges, in line with the taxonomy provided in Trbojević-Milošević's (2004) study of epistemic modality. The audio recordings of dentist-patient role plays submitted were first annotated using the ELAN 6.4 annotation software (Brugman & Russel, 2004) developed by the Max Planck Institute

for Psycholinguistics and the transcripts were exported for analysis (Figure 1 and Figure 2).

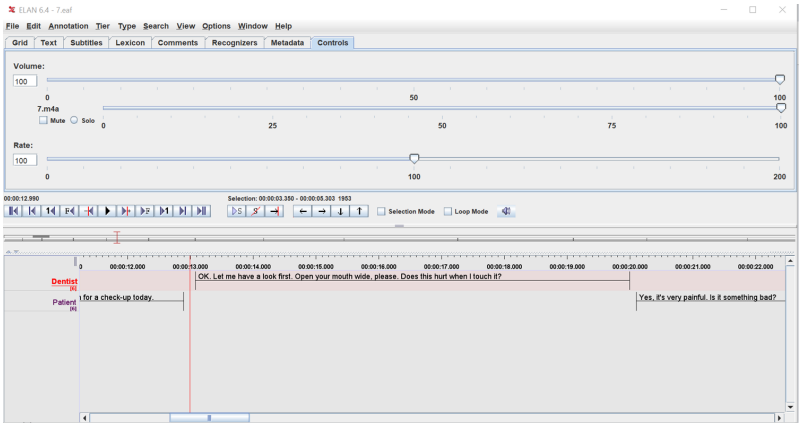

Figure 1: The process of annotation in ELAN 6.4

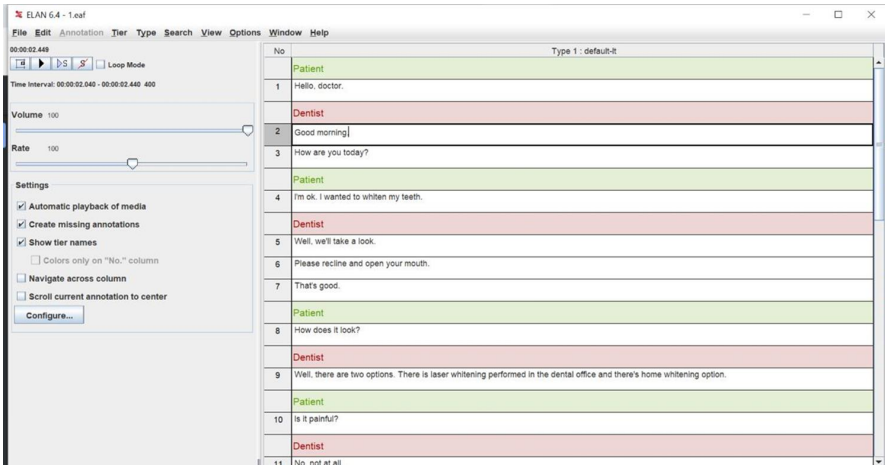

Figure 2: A transcript of a dentist-patient role play

Afterwards, the hedging properties of epistemic modal verbs, non-factual verbs, modal adverbs, modal expressions containing epistemic nouns and adjectives, and semi-modals were quantitatively and qualitatively analysed. In doing so, the following taxonomy based on Trbojević-Milošević's (2004) work on epistemic modality was applied (Table 1):

Modal verbs	CAN/COULD MAY/MIGHT SHALL/SHOULD
Non-factual verbs	BELIEVE, THINK, SEEM, APPEAR, LOOK, WONDER
Modal adverbs	POSSIBLY, CONCEIVABLY, MAYBE, PROBABLY, LIKELY
Epistemic modal expressions (containing nouns and adjectives)	THERE IS A SLIGHT/ POSSIBILITY/ CHANCE/ LIKELIHOOD/ NO DOUBT THAT; IT IS POSSIBLE/ (UN)LIKELY/ PROBABLE/ CERTAIN/ NECESSARY THAT
Semi-modals	BE LIKELY TO, BE SUPPOSED TO

Table 1: The taxonomy of linguistic mechanisms functioning as hedges used for corpus analysis

It should be noted that the modal verb WILL can have different functions (Toolan 1996: 49). What is more, Nuyts (2000: 173) states that "the epistemic status of the former is beyond doubt, but this usage is relatively minor." Therefore, it may be difficult to properly differentiate between its volitive and hedging properties. For this reason, the epistemic meaning of the modal verb WILL was not included in the taxonomy above.

Such a taxonomy enabled us to explore how dental students hedge their utterances, which modal hedges they are most prone to use, and what effect on the speaker they are trying to achieve.

3. Results and Discussion

The corpus consisting of 3,219 words was analysed and 38 utterances expressing explanations were found in the ten role-plays included in the study. Out of these 38 utterances, there were 18 occurrences of modal hedges identified. Modal verbs occurred most frequently (16) and there was only one occurrence of both non-factual verbs and modal adverbs (Table 2). There were no instances of epistemic modal expressions (containing nouns and adjectives) and semi-modals. Therefore, these epistemic expressions will not be discussed in further detail in the context of corpus findings.

The findings of our study are consistent with the findings of Coates (1983, 1987), who investigated lexical exponents of modality and concluded that modal verbs (e.g. MAY) are far more common than the corresponding modal adverbs (e.g. PERHAPS, MAYBE, POSSIBLY) or other related modal forms (POSSIBLE, POSSIBILITY, etc.).

Modal Hedges	**No.**
Modal Verbs	16
Non-factual verbs	1
Modal adverbs	1
Epistemic modal expressions (containing nouns and adjectives)	0
Semi-modals	0
Total	18

Table 2: The number of modal hedges in the corpus

3.1 Modal verbs

(1) 11 DENTIST04: Well, this involves the removal of the tooth pulp. The pulp is thin, thread-like tissue inside the tooth. Once removed, the space is cleaned, shaped, and filled. Your tooth pulp contains nerves, blood vessels, and lymph tissue. Should it become damaged by advanced decay or more commonly by cracking or breaking a tooth, it *can become* infected. If the infection is not treated, then its pus *may build up* in the tooth, creating a painful abscess. 00:00:34.630 – 00:01:06.112[3] (0.98)[4]

12 DENTIST04: Apart from being painful, an abscess *can also damage* bone around the tooth. Root canal treatment is a way to save the tooth when other... when otherwise it would have to be extracted. 00:01:07.090 – 00:01:18.041 (0.46)

[3] TC – Total Communication

[4] SD – Silence Duration

The dentist opens this exchange with the treatment method and goes on to provide the rationale behind the suggested treatment option while hedging the prognosis for the disease. This could be accounted for by the dentist's willingness to mitigate the effects of the unfavourable prognosis on the patient, which can be interpreted as a mechanism whose purpose is to reduce patient anxiety. Therefore, it could be argued that the epistemic distance expressed through the use of modal verbs CAN and MAY is used in order to follow a patient-centred approach to decision-making and breaking bad news. Furthermore, an *if-clause* is used to further mitigate the fact that pus *may build up* in the tooth.

(2) 14 DENTIST08: After the procedure, you *can expect* some light bleeding as the wound is healing itself. 00:01:04.260 – 00:01:04.260 (13.32)

In this case, the dentist is trying to describe the typical side-effects of the treatment and opts to use the epistemic modal verb CAN to hedge their commitment to the treatment effects and prognosis. In this way, the dentist is following the patient-centred approach by sharing relevant information and reassuring the patient. The dentist chooses an epistemic modal verb to warn the patient about the possibility of adverse side-effects of the procedure in a manner that can be understood as providing comfort, thus increasing patient satisfaction.

(3) 09 DENTIST09: Well, we're going to remove the decay and then we'll either put filling in or if the decay is extensive, we can't repair it. We *may have to put* a crown on your tooth. Or, as a last resort, we *might have to extract* the tooth. 00:00:42.060 – 00:01:01.638 (1.06)

In this example, both MAY and MIGHT are used as exponents of epistemic distance serving as downtoners used "to soften" the utterance and "make it less intrusive than an instruction or command" (Adams 2013: 217). However, their usage epitomises how the level of epistemic distance may vary. Therefore, it is important to distinguish between the two gradients (Trbojević-Milošević 2004: 79) when it comes to the dentist's belief that the treatment methods proposed will be necessary. Consequently, it can be inferred that the dentist used MAY because they believed the first treatment option (*a crown*) is more likely than the second treatment option (*tooth extraction*), where the distal form MIGHT is used.

(4) 30 DENTIST09: So, now your teeth *should be* completely tartar-free, but to be 100% sure, I will brush them with a high-powered electric brush to deplaque. 00:01:46.930 – 00:01:54.791 (0.17)

Referring to Coates' (1983) semantic analysis of modal auxiliaries, Nuyts (2000: 173) describes *should* as a modal verb expressing "epistemic inference", where *inference* is perceived as expressing "evidential meanings". So used, these modals indicate that "the speaker is led to postulate the state of affairs because of evidence available to him/her" and, thereby, *should* represents propositions based on "weaker evidence" (Nuyts 2000: 173-174). In the example above, the dentist is trying to convince the patient that additional treatment is required by opting to use *should* as an epistemic indicator regarding the successfulness of the previous treatment modality. This example aptly illustrates the persuasive nature of hedges.

(5) 17 DENTIST08: Holding a cold pack against your jaw *may relieve* pain, also using pain relievers or prescription pain medication *should help*. 00:01:28.600 – 00:01:36.240 (0.07)

This is an illustration of how the dentist provides post-treatment explanations. The epistemic modal verb MAY is supposed to suggest that a cold pack is not bound to help alleviate the pain. Moreover, a *double hedge construction – modal verb + help* (Trbojević-Milošević 2012: 82) is used (*should help*) when it comes to providing explanations regarding alternative pain management options. Such usage of hedges may lead to the conclusion that the dentist seems to expect the pain to be rather severe, but wants to provide the patient with all information available when it comes to reducing the pain. This is in line with the patient-centred approach.

3.2 Non-factual verbs

(6) 17 DENTIST10: It's actually splitting into halves, but it's still fixed to the bone. *I don't think* trying to repair the tooth would be a good idea. I will have to remove it. I'm sorry. 00:00:48.770 – 00:00:57.406 (0.22)

18 PATIENT10: Oh, I so don't understand how this happened. I'm so scared right now. Is it going to hurt? 00:00:57.630 – 00:01:02.745 (0.14)

According to Trbojević-Milošević (2004: 88), non-factual verbs such as *believe, think,* and *wonder* do not imply truthfulness or untruthfulness of a proposition; instead, they are indicative of its *potential* truthfulness or untruthfulness. Also, *think* is a mental state predicate and Nuyts (2000: 164) argues "the mental state predicate is often used to 'hedge' strong statements in order to make them sound milder, for example when the speaker fears (s)he might offend or hurt the listener". However, Example 6 demonstrates that the dentist's attempt to hedge the proposition related to tooth extraction was unsuccessful, thus resulting in increased patient anxiety.

3.3 Modal Adverbs

(7) 15 DENTIST08: Also, you will *probably* experience swelling, bruising, and pain surrounding the area. 00:01:17.620 – 00:01:22.142 (0.35)
16 PATIENT08: When I experience pain, what should I do to minimise it? 00:01:22.490 – 00:01:27.344 (1.26)

The only example that contains the modal adverb *probably* refers to the doctor's explanation about the post-treatment effects, opting for the adverb which is in the middle on the positive side of the epistemic scale of the degree of likelihood (Nuyts 2000: 55). Such a choice suggests its strategic use to "mitigate unfavourable or compromising information" (Carretero 1996, as cited in Nuyts 2000: 101). Based on the patient's response, it can be argued that the patient entirely neglects this attempt of mitigation and continues the interaction with requesting additional information for pain reduction, taking for granted that the said symptoms will inevitably occur.

4. Conclusions

Building on Hyland's (1996: 477) observation that "L2 students are rarely able to hedge their statements appropriately", we aimed to investigate how L2 students utilise modal hedges in simulated spoken interactions with their patients in an English for Dentistry course. Our focus was on the explanations provided by the students, as effective explanations not only convey information, but also guide treatment decisions and help

establish trust (Hagihara & Tarumi 2006: 143). We examined students' explanations through the lens of patient-centeredness, recognizing that effectively addressing patients' needs encourages their active participation in decision-making and ensures that patients' beliefs play a significant role in treatment decisions, incorporating both biological and psychosocial aspects of illness (McCabe 2004; Adams 2013; Lipkin et al. 1984).

A corpus of 10 role-play scenarios annotated using ELAN software was analysed to identify instances of modal hedges in explanations. The investigation focused on the usage of epistemic modal verbs, non-factual verbs, modal adverbs, modal expressions containing epistemic nouns and adjectives, and semi-modals.

Of the 18 modal hedges identified, 16 were modal verbs that students used when talking about the condition of the disease, treatment methods, treatment effects, and the treatment prognosis. The findings reveal that modal hedges are used with the purpose of reducing patient anxiety, mitigating the effects of the treatment, and softening instructions/commands, i.e., downtoners. This suggests that students are somewhat aware of the importance of providing explanations in a patient-centred manner and strive to adhere to this approach, particularly in decision-making and breaking bad news. Additionally, they use modal hedges to soften the directness of their explanations or as a persuasive tool. Finally, since explanations are a crucial aspect of the interaction between dentists and patients, it is essential to design course materials that emphasise providing patient-centred explanations in English.

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