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Do Nurses Use Discourse Markers Differently when Using Their Second Language as Opposed to Their First while Interviewing Patients?

Yeji Han, Norman Segalowitz, Laura Khalil, Eva Kehayia, Carolyn Turner, and Elizabeth Gatbonton

Abstract: This study examined whether discourse-marker use changes in nurse–patient interactions as a function of nurses using their first (L1) or second (L2) language. Discourse markers were analyzed as Turn-Maintenance markers that indicate acknowledgement and Discourse-Shift markers that signal shifts of a topic or speaker in the conversation. These two categories differ in terms of degree of discourse management and interactional control. Sixteen nurses conducted a pain-assessment interview with a patient native speaker of English and with a patient native speaker of French, where the nurses used their own L1 in one case and their own weaker L2 in the other. The first hypothesis, that nurses would generally use discourse markers more frequently in the L1 than in the L2, was not supported. The second hypothesis, that nurses would use Discourse-Shift markers less frequently in their L2 compared to the L1, relative to their (baseline) use of Turn-Maintenance markers, was supported. The findings, especially the support for the second hypothesis, could have implications for the development of L2 training for health practitioners.

Keywords: discourse markers, health-care communication, L1–L2 difference in discourse, nurse–patient interaction, turn-taking

A considerable amount of health communication research over the past decades has focused extensively on doctor–patient interaction, and only recently have other health practitioners such as nurses, receptionists, and pharmacists received scholarly attention (Harvey & Koteyko, 2013). Because nurses constitute the largest group of health-care professionals, their underrepresentation in health communication research is problematic for a comprehensive understanding of medical consultation (Candlin, 2000; Hak, 1999; Harvey & Koteyko, 2013). Compared to other health practitioners, nurses' communication skill with patients is an important component of medical practice. This is because nurses spend more time with patients (Henzl, 1989) and are the first people that patients ask for help in hospital (Candlin, 2006). In addition, nurses are involved in diverse medical duties, ranging from collecting blood samples to conducting hospital admission interviews (Candlin & Candlin, 2003; Harvey & Koteyko, 2013). The diversity of medical contexts in which nurses are involved is likely to result in a wide range of discourse structures with different levels of formality and styles. Another potential source of diversity that may affect how nurses communicate is which language they use. Patient populations in most countries are becoming increasingly linguistically diverse due to widespread immigration. In addition, the population of health providers can itself be linguistically diverse due to the mobility of professionals (Dumont, Zurn, Church, & Le Thi, 2008).

In general, how health-care providers use language, including in multilingual settings, has been widely acknowledged as an important aspect of health-care practice. The medical dialogue is a conversational event in which providers and patients build a trusting relationship, share valuable information, and exchange opinions (Street & Millay, 2001; Walker, Trofimovich, Cedergren, & Gatbonton, 2011). When clinicians and patients do not share the same first language (L1) – language-discordant situations – communication difficulties may arise, resulting

in serious medical errors, frequent hospitalization, inappropriate diagnoses, and problems with informed consent (Brisset et al., 2014; Divi, Koss, Schmaltz, & Loeb, 2007; Jacobs, Chen, Karliner, Agger-Gupta, & Mutha, 2006). In a language-discordant context where the health-care provider happens to be highly fluent and functional in the patient's L1, medical miscommunication might not be an issue. However, in a language-discordant context where patients have to use their weaker L2 to communicate, they may fail to fully understand critical pieces of medical information or may miss nuanced expressions related to establishing rapport or promoting compliance. Patients using their L2 may also fail to adequately express deeply subjective experiences related to physical or emotional pain. Similarly, if it is the health professional who uses their less fluent L2 to communicate (e.g., English-speaking nurses in the United States using their L2 Spanish with Hispanic patients), then the quality of communication may suffer because of the health professional's limited linguistic abilities (Isaacs, Laurier, Turner, & Segalowitz, 2011; Segalowitz & Kehayia, 2011; Vickers & Goble, 2011). For example, in an English/French bilingual context, using a role-play conversation corpus, French and Lapointe (2017) analyzed nurses' communicative strategies in showing empathy and sympathy to patients. Significant cross-linguistic differences were found in English and French, implying that nurses in bilingual health-care contexts are expected to adopt different communicative strategies for providing emotional support as they shift language according to the patient's language, and this may be difficult to do effectively in the L2. Such failure to communicate effectively in the L2 can be expected to result in patients experiencing reduced psychological support (e.g., reduced communication of empathy and building of trust), which in turn may negatively affect patients' satisfaction and enablement (Derksen, Bensing, & Lagro-Janssen, 2013).

An important aspect of communication is management of the flow of the discourse (Ainsworth-Vaughn, 2001; Schiffrin, 2001). This includes, among other things, signalling whether the current speaker wants to continue or is ceding the floor to the other interlocutor, and whether there is to be a shift in the topic under discussion. Such discourse management may also play a role in establishing rapport with the interlocutor. In a health setting, it is especially important for the professional to be able to control the flow of discourse in order to ensure efficient communication, given the tight time constraints that usually characterize such settings. Discourse management requires the subtle use of language, which may be a challenge for people using their L2. Our study investigates this aspect of health communication by comparing nurses' L1 and L2 discourse-management strategies with patients during pain-assessment interviews. There has been research showing that nurses are generally quite sensitive to patients' psychological and emotional needs, perhaps even more so compared to other health professionals (Candlin, 2006; Dougherty & Lister, 2015; Staples, 2015a). Nurses' discourse strategies involve personal and colloquial language, repetition of words produced by a patient, and discourse markers. For example, even the confirmatory word "right" (e.g., Collins, 2005, p. 788) can qualify as a discourse marker. When used as acknowledgement/confirmation, "right" has the function of encouraging the patient to continue, thus signalling that the nurse is listening attentively and is interested in developing rapport with the patient. Rapport building and patient-centred interaction are also reflected in lexico-grammatical features of health-professional talk, for example in the use of personal pronouns (Adolphs, Brown, Carter, Crawford, & Sahota, 2004; French & Lapointe, 2017; Holmes & Major, 2002; Rees & Monrouxe, 2008), conditionals (Adolphs et al., 2004; Ferguson, 2001; Holmes & Major, 2002), and grammatical stance (e.g.,

kind of, probably; Malthus, Holmes, & Major, 2005; Prince, Bosk, & Frader, 1982; Skelton & Hobbs, 1999; Staples, 2015a, 2015b).

Successful nurse–patient consultation requires nurses to project themselves as both psychologically supportive and professionally competent through non-verbal and verbal communication (Haskard, DiMatteo, & Heritage, 2009). However, it can be challenging for nurses to manage their speech in a way that addresses patients' psychological and emotional needs, due to time pressures requiring health-care consultations to be efficient (Jones, 2007; Koteyko & Carter, 2008). These challenges can be expected to be even greater in language-discordant situations, where the nurse has to use a second language to communicate with the patient, compared to language-concordant situations, where the nurse and the patient have the same L1. This L1/L2 contrast is the focus of the study reported here.

Pain-assessment interview

The present study focuses on the pain-assessment interview because this communicative context is constrained in interesting ways for research purposes. The pain-assessment interview is a narrative-based medical practice that involves verbally examining patients' medical conditions. Compared to many other data-gathering procedures (e.g., x-ray, blood samples), narrative practice is subjective by nature. A widely used pain-assessment protocol, the McGill Pain Questionnaire, invented by Melzack (1975), reflects careful wordings for describing types of pain and the numeric intensity of pain. The pain questionnaire has been highly influential in pain diagnosis and used in multiple languages. More recently, Jones (2013) described a pain-management scale used for diagnosis, which involves numbers (e.g., from 1 to 10), words to describe the intensity of pain (e.g., mild, moderate, severe), subjective words related to a patient's emotions (e.g., no pain, mild, discomforting, distressing, horrible, excruciating) and

metaphorical visual representation (e.g., blue for mild to red for intense). In hypothetical

situations where patients have the same type and degree of pain, it is not unlikely that patients

respond differently to the pain-management scale due to their subjective perceptions of pain and

different medical histories and experiences. Despite this subjectivity, narrative-based practice is

the most basic and common diagnostic tool (Greenhalgh, 1998; Polkinghorne, 1988). During the

process of examination, illness symptoms are contextualized through discourse that is co-

constructed by both patient and health provider (Clark & Mishler, 1992). Successful practice

involves not only transmission of messages but also communicative social functions that include

showing empathy and building solidarity or, as Fisher (1991) and Mishler (1984) put it, through

a combined "voice of medicine and voice of lifeworld."

The pain-assessment interview can be conceptualized as a combination of the complaint

and verbal examination stages of the medical consultation process discussed by ten Have (1989):

opening, complaint, examination or test, diagnosis, treatment or advice, and closing. Each stage

involves a specific set of tasks that to some extent can be accomplished by interaction between

the patient and health provider (Jones, 2013). Thus each stage of provider–patient interaction

involves distinct discourse features and challenges. A pain-assessment interview may include the

exchange of subjective information, posing prearranged questions, and eliciting patients'

knowledge about the pain. Although it is the health-care provider who asks questions from a pre-

set list to assess a patient's pain experience, it is the patient who is the expert in the topic of

discourse: the pain. This expertise gives the patient some agency during a pain-assessment

interview, counterbalancing somewhat the health provider's authority. Peräkylä (2002) studied

patients' extended responses to doctors' diagnostic statements as a sign of co-constructing the

narrative discourse and found that patients' extended responses are most common during the

symptom-description stage. A patient actively participates in the narrative by offering information not triggered by a question from a health provider (Sarangi, 2008; Stivers & Heritage, 2001).

Discourse-analysis research on the complaint stage of medical consultations has led to important findings and implications. In the complaint stage, physicians often let patients talk for longer periods of time than usual and use cooperative strategies in consulting narratives (Chatwin, 2006; Pomerantz, Gill, & Denvir, 2007). Similarly, ten Have (1989) found that in the complaint stage, consultation takes longer than in other stages because both patient and health practitioner can extend their talk beyond what is technically necessary for accurate diagnosis. Patients may unnecessarily elaborate and self-reflect about troubles (i.e., "troubles telling"; ten Have, 1989, p. 115), and health practitioners may engage passively in the patient's self-reflective talk rather than giving expert advice (i.e., "therapy talk"; p. 115). Therefore, in the complaint stage, the discourse-management challenges are to diagnose successfully while avoiding getting off-track and talking for too long. A more recent quantitative study (Staples, 2015b) examined the quantity and linguistic features of the five stages of nurse–patient interaction. The ratio of nurse to patient talk was found to be asymmetrical in all stages of medical consultation except the complaint stage; aligned with the previous studies, patients played a more active role in the complaint stage in terms of the amount of speech, whereas nurse talk was found to be greater than patient talk in other stages of medical interaction.

Time pressure is also a feature of the hospital admission interview. Jones (2007) found that discourse during the hospital admission interview consists of rapid-fire exchange of questions and answers, which is different from everyday conversation. Nurses are thus under time pressure to conduct interviews efficiently. However, nurses also tend to use interpersonal

discourse-management strategies such as humour and allowing for patient-led talk (Holmes & Major, 2002). These features of clinical admission consultations are very similar to the pain-assessment interview. In the latter, the nurses must perform an accurate assessment of patients' medical conditions while sensitively and skilfully handling the discourse at the same time. From a health-care provider's perspective, the challenge of the pain-assessment interview is to decide when to encourage a patient to talk and when to intervene to move ahead and shift the topic. In order to conduct time-efficient, accurate diagnoses, a health-care provider needs to use interactive discourse-management strategies such as interruptions, question asking, reflective listening, and so on. Our study investigates, in the context of L2 versus L1 communication, one particular linguistic device known to be a signature of discourse management: the use of specific discourse markers.

Discourse markers

Discourse markers are lexical items such as like, so, well, and okay, which have the linguistic function of providing coherence in the conversation by marking the relationship between utterances (Torres, 2002). Although there is no agreement on precise definitions, most linguists would accept that discourse markers fulfil a relational function in discourse. For example, early theories highlighted the sequential relationships of discourse markers to other utterances. Fraser (1990, p. 387) defined discourse markers as "a class of expressions, each of which signals how the speaker intends the basic message that follows to relate to the prior discourse." Similarly, Schiffrin (1987, p. 31) noted that discourse markers are "sequentially dependent elements that bracket the units of talk." More recently, linguists have added semantic and contextual dimensions. For example, Fraser (2009, 2013, 2015) proposed primary meanings for each marker to clarify semantic relationships between adjacent utterances (e.g., but is

contrastive). However, there is not a simple, universally applicable one-to-one mapping between specific discourse-marker expressions and their functions; a lot depends on context (Filipi & Wales, 2003; Vickers & Goble, 2011).

With a few exceptions (e.g., Heritage & Sorjonen, 1994; Staples, 2015a, 2015b; Vickers & Goble, 2011), the topic of discourse markers has rarely been the focus of health communication research, partly, no doubt, because discourse markers do not contribute to the content meaning of sentences. However, their communicative functions are highly relevant to medical discourse. As noted above, health practitioners' communication skills involve not only the transmission of messages but also time-efficient discourse management and sensitivity to patients' psychological needs. In order to achieve this, health practitioners must possess sufficient interactional competence using sentence-peripheral elements as well as general language skills (i.e., vocabulary, pronunciation, grammar).

A few researchers have proposed that in health care the functions of discourse markers depend largely on the discourse contexts in which they occur. For instance, Heritage and Sorjonen (1994) found that and-prefacing before questions has different functions in medical discourse from other contexts. They studied nurses' talk during visits to first-time mothers in a British community health-care context. The nurses gathered fact-sheet information regarding mothers' and infants' health inquiries and immunization consent. During these interactions, and-prefacing functioned as a linking device between a question and a subsequent question or answer, indicating an agenda-based character to the communication. Such routine-based procedural interaction is characteristic of institutional medical talk and certainly different from much of everyday conversation.

Staples (2015a, 2015b) explored a broad spectrum of lexico-grammatical features in the L1 English of United States–educated nurses and in the L2 English of internationally educated nurses at different stages of the medical consultation and found differences between the L1 and L2 corpora in the use of past tense, prediction, modals, likelihood adverbs, that-clauses, and the second-person pronoun you. For example, L2 English-speaking nurses more often used repetition of you compared to L1 English-speaking nurses, possibly as a substitute for discourse markers or as a filler or linking device between utterances.

The challenges of using discourse markers in the L2 involve mastering their multiple functions. For example, Fung and Carter (2007) reported that English learners in Hong Kong showed restricted use of discourse markers at textual levels such as continuation of topics (e.g., and) and lacked other functions at content levels such as elaboration (e.g., like, I mean), compared to native speakers of British English. Similarly, Müller (2005) compared American L1 and German speakers' L2 English use of English discourse markers. With a corpus-based bottom-up approach, she focused on multiple functions of selected discourse markers such as so, well, you know, and like. German speakers using L2 English differed in the use of sub-pragmatic functions of each discourse marker.

Vickers and Goble (2011) investigated the use of English discourse markers during Spanish-language medical-setting consultations in the United States with Hispanic patients, where bilingual health-care providers occasionally code-switched from their L2 Spanish to their L1 English. They compared the frequency of English discourse markers used in these primarily Spanish-language interviews in proportion to the total number of English words produced by English-dominant versus Spanish-dominant health-care providers. Not surprisingly, English-dominant health-care providers produced more English discourse markers than did Spanish-

dominant health-care providers. In addition to the analysis of the frequency of English discourse markers, the authors qualitatively explored the functions of English discourse markers through open-coding transcripts of conversation between English-dominant health-care providers and Spanish-speaking patients. They provided a detailed classification of discourse markers that emerged from their database of doctor–patient interactions. In particular, they identified seven types of discourse marker that we subsequently used to guide our research. These were: (a) response markers, indicating a response to previous discourse, with the aim of continuing the conversation (e.g., yes, okay, alright); (b) negative response markers, with a similar function but indicating a negative response to the preceding utterance (e.g., oh no, oh boy); (c) evaluative response markers, used to evaluate previous utterances (e.g., good, very good); (d) attention markers, with the function of drawing attention to the speaker's utterance (e.g., so, how is your leg today?); (e) attention markers of disagreement (e.g., well, I don't think so); (f) topic shifters that function to change the focus to a new subject matter (e.g., now, let's talk about your pain); and (g) floor shifters, allowing turn-taking to occur (e.g., you are taking your medication, right?).

The use of attention markers and shifters (marker types d–g above) may reflect the power asymmetry between health-care providers and patients. The power of social position and medical expertise is reflected and exerted through linguistic features, for example, question-asking (e.g., Frankel, 1990; Mishler, 1984) and interruption (e.g., Hall, Epstein, DeCiantis, & McNeil, 1993; Lieberman, 1996). During physician–patient interaction, the frequency and duration of questions and interruptions are notably higher in physician talk than in patient talk (Beckman & Frankel, 1984; Marvel, Epstein, Flowers, & Beckman, 1999; Roter & Frankel, 1992). This asymmetry reflects the power imbalance between the health-care professional and the patient because questions and interruptions are linguistic behaviour used to claim the floor or direct attention to a

speaker or new topic. Social power in medical discourse is constructed and exchanged through such linguistic practice. In a similar vein, the function of discourse markers as discourse management is closely related to power dynamics between participants in the discourse.

When health-care providers use their L2, establishing interactional control through discourse management may be more challenging than when using the L1 because, typically, the L2 is their weaker language and consequently places on them a heavier cognitive load (Segalowitz & Kehayia, 2011). This point has not been directly studied yet, but there are findings consistent with this view, pointing to difficulties in using discourse markers in the L2. As mentioned earlier, Vickers and Goble (2011) showed that English/Spanish bilingual health-care providers use fewer discourse markers in L2 compared to L1 (their dominant language). Sankoff et al. (1997) found a relationship between Canadian English speakers' use of L2 French discourse markers and their length of exposure to French, implying a relationship between marker use and L2 proficiency. With regard to comparing L1 and L2 speakers, Liu (2016) showed that L1 speakers use discourse markers more frequently than do L2 speakers. Overall, the findings suggest that discourse-marker use can be challenging in the L2 and that it needs to be developed along with other L2 linguistic skills.

In considering Vickers and Goble's (2011) seven discourse marker sub-types for use in our study, we noticed that they fall into two broad categories that could be considered as making different levels of cognitive demand on the speaker using them. For example, the markers labelled as response, negative response, and evaluative, while having the different specific functions indicated earlier, nevertheless overlap in signalling that speaker-turn – that is, who should have the floor at this moment – remains unchanged. Each implicitly conveys, among other things, something like "I hear you and please continue telling me about it." We refer to

these as turn-maintenance markers. In contrast, the markers labelled attention, attention disagreement, topic shifter, and floor shifter overlap with one another in signalling that some change of direction is called for, either in topic direction or in who should speak next. Each implicitly conveys, among other things, something like "I hear you but let's now change the focus." We refer to these discourse markers as discourse-shift markers. This classification of markers into two broad categories echoes Staples's (2015b) observation of two major functions that discourse markers have in medical consultations: acknowledgement of what has been said (e.g., okay, yeah) and transition to a new topic (e.g., now). What we are calling discourse-shift markers can be expected to place greater cognitive demands on the speaker than do turn-maintenance markers. This is because using a discourse-shift marker involves trying to change the interlocutor's behaviour in some way, whereas using a turn-maintenance marker does not. For this reason, we would expect there to be an effect whereby in both L1 and L2, discourse-shift markers should be more difficult to use than turn-maintenance markers, but this difference should be greater in the L2 than the L1 because the L2, being the weaker language, already carries a burdensome cognitive load for the speaker.

In sum, the functions of discourse markers to maintain or shift turns is conceptually relevant to the power dynamics of medical conversations. In medical consultations where providers are using their L2, the challenge of using discourse markers could be greater than when using their L1, especially when coupled with the social and cognitive demands of L2 use. Inspired by the findings of Vickers and Goble (2011), we posed two general research questions. First, do nurses generally use discourse markers less when using their weaker L2 compared to their L1? Second, when using their L2, do nurses' patterns of discourse-marker use differ from when using their L1? These questions shaped our more specific research hypotheses:

We hypothesized that, in the context of administering a pain-assessment interview,

H1: Nurses will use discourse markers overall less frequently in the L2 than in the L1;

H2: Nurses will use discourse-shift markers (to shift topic or speaker turn) less frequently

relative to turn-maintenance markers (to maintain the current conversational direction) in the L2

than in the L1.

Method

Ethical certification for this research was obtained from the university and from the hospital

where the study was conducted.

Participants

Data were initially collected from a pool of 53 nurse participants working at a hospital.

This study took place in Montreal, a multilingual metropolis with a majority of the population

speaking either English or French as the first language (L1 English = 19.7%; L1

French = 72.9%) or both as their first language (L1 = both French and English = 6.1%) (Statistics

Canada, 2016). Nurses with first or dominant language backgrounds other than English or

French, or who by the end of the study had conducted the pain-assessment interview in one

language only (English or French), were excluded, leaving data from 16 participant nurses for

the analyses reported here. All nurses were females between the ages of 21 and 60 years old

(M = 39.93, SD = 10.26), with an average of 13.04 years' experience. Six nurses reported having

French as their L1 and English as their L2, and ten nurses reported having English as their L1

and French as their L2. The 16 nurses self-rated their speaking abilities in each language on a

scale from 1–5, where 1 = "beginner," 2 = "intermediate," 3 = "advanced," 4 = "nativelike," and

5 = "It's my first language." The mean rating for their L2 was 2.53/5 (range = 2 to 4). The nurses

also reported how often they used French and English at work, on a scale from 1 to 4, where

1 = "never," 2 = "sometimes," 3 = "often," and 4 = "always." Mean use of French was 3.40/4 (range = 2 to 4, and mean use of English was 3.53/4 (range = 3 to 4).

The patients were screened by the hospital during triage before consulting with a nurse. Any patient diagnosed with cognitive impairments (e.g., Alzheimer's disease, dementia, etc.) or with speech impairments (e.g., aphasia) did not take part in this study. Only patients with pain issues were included. This study was conducted in English and French only. All nurse and patient participants provided informed consent, and their participation on the pain-assessment interview was voluntary. The nurses were compensated monetarily for their participation on those aspects of the study that were not part of their everyday hospital duties.

Materials

Language Background Questionnaire. An English/French bilingual language background questionnaire, used to obtain a general profile of nurses' language acquisition history, included questions about participants' school language of instruction from primary to post-secondary, as well as general demographic question (age, gender, profession). Nurses also identified their L1, L2, and other languages known, and they self-rated their level of proficiency in both English and French on a five-point scale, ranging from *beginner* to *it's my first language*.

Pain Assessment Interview Protocol. The hospital's official pain-assessment interview protocol – a collection of pre-set questions to prompt the nurse for specific information – was used in both English and French interviews. This interview assessed patients' level, duration, and localization of the pain, and related issues as well as treatment solutions.

Procedure

Each participating nurse conducted a pain-assessment interview with a patient in the nurse's L1 (English or French) and with another patient in the nurse's L2 (French or English).

Patients were always interviewed in their own L1. Matching nurses with patients for purposes of this study was monitored and arranged by a nurse working at the same hospital, hired by our team as a research assistant. The nurses and patients retained for data collection were informed that the interviews would be audio-recorded and that they had the right to stop participating at any given time. During each interview, the nurse research assistant remained in the room and ran the recording equipment. The nurses followed the official pain-assessment protocol given by the hospital and were encouraged to lead the interviews as they normally would, as these were real patients (not role playing). The interviews were transcribed for analysis of the discourse, with appropriate steps taken to keep patient and nurse information anonymous. The average duration of the interviews was 4 minutes, 32.47 seconds (SD = 3 minutes, 13.02 seconds). The average time lag between the first and second interviews was 26 months (SD = 19.4), ranging from 5 to 72 months, with 13 of the 16 being 35 months or less. These lags were due to scheduling challenges in the hospital because of the need to find eligible nurse–patient matches that respected all the language and patient-presentation criteria for eligibility. For 11 nurses the first patient interview was in their L1, and for five nurses it was in their L2.

All consenting nurses were invited to attend an additional session in which they completed the language background questionnaire, along with other computer-based reaction-time language-related cognitive tasks, not part of this study. This additional session was completed during the nurses' own time during breaks, within days, or up to one week after the second patient interview was recorded. The tasks were completed in a hospital room dedicated to this purpose. The nurses were remunerated for participating in these additional tasks that were not part of their everyday hospital duties.

Data analysis

The audio-recordings were transcribed by a team of three fluent speakers of English and three fluent speakers of French. The third author of this study, who is fluent in English and French, identified the discourse markers as described in Vickers and Goble (2011).

When conducting these analyses, we encountered repetitive occurrences of what would normally be considered a response marker (e.g., "okay, okay," a repetition of "okay"). The literature did not suggest whether to count such instances as two occurrences of a response marker or as a single example of something else. We opted for the latter, creating a new sub-type we called a repetitive response marker, to avoid inflating counts of the sub-type response marker due to repetitions. As a result, there were now eight, rather than seven, sub-types of discourse marker, four each in the turn-maintenance and discourse-shift categories (Table 1).

Table 1: Categories of discourse markers used by nurse speakers in Vickers & Goble (2011) and in the present study

Category and sub-type	Discourse markers examples	Definitions	Discourse-management function
Turn-maintenance			
1. Response markers[a]	English*: yeah, yes, right, oh yeah, oh yeah? oh sure enough*	Discourse markers used by a nurse that respond to the previous patient-led discourse	All four turn-maintenance markers (1-4) are used to acknowledge previous discourse and indicate continuation of current topic with no change of floor
2. Negative response markers[a]	English*: oh geez, oh boy, shoot, uh oh, imagine that*	Discourse markers used by a nurse that indicate negative response/ sympathy to previous patient-led discourse	
3. Repetitive response markers[b]	English*: yeah yeah, okay okay*	Discourse markers used by a nurse that respond to the previous patient-led discourse with repetition of positive acknowledgment	

4. Evaluative response markers[a]	English: *oh good, good, very good, right, wow, that's wonderful, I see, you're right, perfect, excellent, it's okay, very interesting, that's alright*	Discourse markers used by a nurse that act to evaluate previous discourse	

Discourse-shift

5. Attention markers[a]	English: *then, now, let's see, so*	Discourse markers used by a nurse that call attention to the speaker's utterance	All four Discourse-Shift markers (5-8) are used to direct attention to a new topic or change of who should have the floor
6. Attention markers of disagreement[a]	English: *well, but, I mean, course, actually, or, but*	Discourse markers used by a nurse that call attention to the speaker's utterance, which will be a disagreement move	
7. Topic shifters[a]	English: *kay, mkay, nkay* (variations of *okay*), *alright,okey dokey, basically*	Discourse markers used by a nurse that indicate movement from an old topic to a new topic	
8. Floor shifters[a]	English: *right?, kay?*	Discourse markers used by a nurse that turn the floor over to a new speaker	

[a] Category appearing in both Vickers & Goble (2011) and the present study.
b Category appearing in the present study only.
Source: Adapted from Vickers & Goble (2011).

We first categorized each discourse marker as one of the eight sub-types and as either a turn-maintenance or discourse-shift marker. Next, we determined the raw frequencies of occurrence for each sub-type for each nurse. Finally, we adjusted the raw frequencies to take into account the number of words spoken overall by each nurse. For this, we divided the raw number of discourse markers used by the total number of words spoken and multiplied by 100, to convert

the raw frequencies into rates corresponding to the number of discourse markers used per 100 words spoken, separately in L1 and L2, to adjust for individual differences in overall amount of speech. We noted that in the L2 condition, nurses on rare occasions used L1 discourse markers; however, these were not the focus of our study and were not counted in our analyses. For each nurse, discourse marker rates were also calculated separately for turn-maintenance markers and discourse-shift markers in L1 and L2, collapsing across the four sub-types in each category. We chose the number of words as the baseline unit over other possible units, such as the number of turns, because of our research focus on the turn-managing functions of discourse markers. The number of words as a unit of analysis is neutral with respect to turn management and thus suits the data and research focus of this study.

The data for Hypothesis 1 were the overall rates of discourse-marker use in the L1 and L2, and for Hypothesis 2 they were the turn-maintenance minus discourse-shift differences in marker use rates in the L1 and L2. Initial examination of the data revealed non-normal distributions for the most part (for overall rates in L1, skewness = 1.75 and kurtosis = 4.18; in L2, skewness = 1.53 and kurtosis = 3.62; for maintenance-shift rate differences in L1, skewness = 1.30 and kurtosis = 2.12; in L2, skewness = 0.22 and kurtosis = -0.71). These data were then submitted to planned Bayes paired-sample t-tests, where the assumption of normality is not required, to test the two research hypotheses. All data analyses were conducted using JASP (v. 0.9.1) (JASP Team, 2018).

Results

Across the 16 nurses' data, there were 530 L1 and 479 L2 discourse markers, extracted from a total of 6,051 words spoken in the L1 and 5,138 in the L2. Table 2 presents the rate data

by marker type, category, and language. Table 3 provides an illustrative example of a

nurse–patient exchange taken from a single nurse speaking in the L1 and L2 conditions.

Table 2: Nurses' mean rate of discourse-marker use per 100 words of speech as a function of discourse-marker type and sub-type in the first (L1) and second (L2) language ($N = 16$)

Discourse-marker type	Marker sub-type	Mean[a] (SD)	
		L1	L2
Turn-maintenance	Response marker	4.90 (2.70)	6.88 (4.60)
	Negative response marker	0.31 (0.42)	0.32 (0.36)
	Repetitive response marker	0.19 (0.49)	0.27 (0.58)
	Evaluative response marker	0.36 (0.65)	0.47 (0.60)
	All Turn-Maintenance markers combined	5.77 (3.39)	7.94 (5.37)
Discourse-shift	Attention marker	1.16(0.74)	0.80 (0.97)
	Attention marker of disagreement	0.05 (0.11)	0.03 (0.10)
	Topic shifter	0.01 (0.05)	0.00 (0.00)
	Floor shifter	1.58 (1.37)	1.23 (1.19)
	All Discourse-Shift markers combined	2.80 (0.95)	2.05 (1.90)
All		8.57 (3.67)	9.99 (6.63)

[a] Mean per 100 words

Table 3: Illustrative excerpts from one English-speaking nurse using English with one English-speaking patient (L1 condition) and using French with one French-speaking patient (L2 condition), indicating the use of discourse markers

Excerpt/turn	L1 Condition	L2 Condition
Excerpt 1		
Turn		

1	Patient:	after four hours yeah the the pill they gave me the medication I take // it's help help me for four hours	c'est ça douleur à la jambe gauche [*it's the pain in my left leg*]
2	Nurse:	ok[a]	oui[a] [*yes*]
3	Patient:	yeah	à partir du genou puis je fais de la goutte un petit peu aussi dans le genou [*apart from my knee I also have some gout in my knee*]
4	Nurse:	and[b] how high / can your pain go up to / on from zero to ten?	puis[a] ça c'est douloureux aussi [*and that's painful too*]
5	Patient:	It's [inaudible] ten ten	oui hier ils m'ont donné euh une pilule pour la goutte [*inaudible*] le médecin il voit ça puis regarde c'est mou un peu encore [*yes, yesterday they gave me uh a pill for my gout* [*inaudible*] *the doctor had a look and said it's still soft*]
6	Nurse:	and[b] when you take the Tylenol	c'est un peu oui[a] / gonflé oui[a] [*It is a bit yes / swollen yes.*]
7	Patient:	oh it can go down to four or five yeah	et puis ils m'ont donné une cortisone hier, mais pas forte [*and then they gave me some cortisone yesterday but not strong*]

Excerpt 2

1	Patient:	like I told you uh the I sleep for two three hours and then I wake up and uh / turn here turn there / like for nights for nights this way / and uh / the time goes by	Puis ça je m'arrangeais pour prendre ça aussi avant de me coucher pour pas avoir de douleur dans la nuit mais là j'en ai un petit peu moins mais il y a dès fois ça me reveille la nuit si j'en prend pas [*so I arranged to take this also before going to sleep to not have pain during the night but then I had a bit but there are times it wakes me up in the night if I don't take it*]

2	Nurse:	so[c] / what do you do besides taking Tylenol to help with the pain is there anything else that helps?	ok[a] [*ok*]
3	Patient:	and the pain for the pain I think it's only the Tylenol then there well you X you have the pills I was taking for that / yeah	J'aime mieux m'arranger pour le retarder là le jour pour rendu à 9 heures le soir avant de me coucher parce que ça fait quasiment effet une demi heure après là [*I prefer to delay the daytime ones to 9 pm before going to bed because it more or less has its effect a half hour later*]
4	Nurse:	ok[a]	oui[a] [*yes*]
5	Patient:	What I (think) is for for the pain is X the Tylenol yeah	et là je peux m'endormir et puis là je sortais là je suis bon pour la nuit [*and then I can sleep and then I am good for the night*]
6	Nurse:	ok[a]	ok[a] [*ok*]
7	Patient:	They changed the quality of the Tylenol / and now they went back ….	je me suis aperçu de ça d'abord quand je les prenais juste dans le jour et …. [*I first noticed this when I was taking them just during the day and ….*]

Notes.

In the L1-condition, this English-speaking nurse used 10 turn-maintenance and 9 *discourse-shift* markers whereas in the L2-condition she used 16 turn-maintenance and two *discourse-shift* markers.

/ = Indicates a pause in the speech.

[a] Response marker: The nurse acknowledged the information that the patient gave in the previous line, signalling the patient to continue.

[b] Floor-shift marker: The nurse shifted the floor to the next scripted question or follow-up question.

[c] Attention marker: The nurse used an attention marker before moving on to the next question.

The first hypothesis (H1) was that nurses would use discourse markers less frequently in their L2 than in their L1. To test H1, we used an a priori paired-samples t-test to test whether

nurses' rates of discourse marker use (number of discourse markers per 100 words uttered, collapsed over marker type) were lower in L2 than in L1. A Bayes paired-samples planned comparison t-test revealed no statistically significant difference between the use of discourse markers in the L2 (mean rate = 9.99/100 words, SE = 1.66) and the L1 (mean rate = 8.57/100 words, SE = 0.92), with Bayes Factor BF01 = 6.61, indicating that the null hypothesis was 6.6 times more likely to explain these data compared to the research hypothesis (a BF in the range from 3.00 to 10.00 indicates a "substantial" or moderate effect favouring the null hypothesis; Wetzels et al., 2011). As Bayes factors are dependent on the prior distribution, we conducted a robustness check over a range of prior distributions, ranging from 0.707 to 1.41. Over this wide range of prior widths, the data maintained moderate to strong evidence in favour of the null hypothesis. As we did not conduct an a priori power analysis, a sequential analysis was conducted to visualize the evidence as the data accumulated. The sequential analysis indicated a nearly steady upward monotonic trend from moderate toward strong evidence in favour of the null hypothesis, with BF01 in the moderate range starting at N = 3, and stabilizing at around N = 10. This result suggests that with N = 16 one can be confident there was no meaningful L1–L2 difference in overall discourse-marker use.

The second hypothesis (H2) was that nurses would use discourse-shift markers at a lower rate than turn-maintenance markers in the L2 compared to the L1 (i.e., there would be a greater turn maintenance minus discourse shift difference in the L2 than in the L1. To test for this, we again conducted a Bayes paired-samples t-test, comparing L2 versus L1 turn-maintenance minus discourse-shift rate differences. In the L2 the mean difference was 5.89/100 words (SE = 1.15), and in the L1 the mean difference was 2.97/100 words (SE = 0.84), with Bayes Factor BF10 = 4.26, indicating a turn-maintenance minus discourse-shift marker rate difference in the

L2 compared to the L1, and that the research hypothesis was 4.26 times more likely to explain the data than the null hypothesis (a moderate effect). The Bayes sequential analysis yielded a smooth upward monotonic trend from N = 10, reaching a moderate BF10 effect at N = 15 (BF10 = 3.00) and rising to BF10 = 4.26 for N = 16, indicating support with N = 16 for the research hypothesis of a greater marker difference in the L2 than in the L1.

Discussion

This study examined nurses' use of discourse markers in a pain-assessment interview as a function of using their L1 or L2 in English/French bilingual medical contexts. The first hypothesis, that the overall use of discourse markers would be less frequent in the L2, their weaker language, than in their L1, was not supported. In fact, the actual frequency of discourse-marker use was slightly higher in the L2 than in the L1, but not significantly so, and the Bayes analysis allows us to accept the data as evidence for the null hypothesis in this case. This result was unexpected because previous studies have consistently shown that discourse markers are more frequently used by native-speaking medical practitioners than by non-native-speaking medical practitioners (Vickers & Goble, 2011) or by L2 speakers with higher exposure to the language than with lower exposure to the language (Liu, 2016; Sankoff et al., 1997). Because using discourse markers requires interactional competence beyond lexico-grammatical knowledge, we had hypothesized that discourse-marker use would be reduced in the relatively weaker L2 due to speakers' attentional resources being stretched in that language compared to the first.

There are several possible explanations for the absence of overall L1–L2 differences found here. Rieger (2003) found that advanced L2 speakers use a variety of fillers (i.e., discourse markers), whereas L2 beginners often leave unfilled pauses between utterances. Since the nurse

participants in this study were, according to the hospital's norms, proficient enough in their L2 to be allowed to conduct patient interviews in that language, it may be that the typical pattern of discourse-marker frequency may not apply to these nurse participants. Indeed, these nurses did report being exposed to both languages on an everyday basis. The amount of input is a crucial factor in target-like use of the L2 (e.g., Ellis & Collins, 2009) so the relatively highly bilingual context in Quebec may have been a determining factor, resulting in no L1–L2 difference in overall use of discourse markers. Another possible explanation for the result is the overuse of turn-maintenance markers in the L2. It is worth noting that nurses' use of turn-maintenance markers was actually higher in the L2 than in the L1. The use of turn-maintenance markers may thus have compensated for the lack of lexico-grammatical competency in the L2. Considering that turn-maintenance markers simply indicate agreement or understanding of the information provided, they would be expected to be considerably easier to use in the L2 than would be formulating a content-related message, which would require speakers to construct meaning through lexico-grammatical forms. The correct usage of discourse markers was not assessed in this study, so it is unclear whether the similar frequency of overall discourse-marker use in the L1 and L2 reflects equally proficient skills in discourse-marker use or just equal rates in attempting to use them. Even advanced L2 speakers can reach "pragmatic fossilization of discourse markers" (Trillo, 2002, p. 770) while still lacking full pragmatic competence and therefore misusing them on occasion.

The second hypothesis was that the rate of using discourse-shift markers relative to the rate of using turn-maintenance markers (taken as a baseline measure) would be lower in the L2 than in the L1. This hypothesis was supported. We had reasoned that, in contrast to using turn-maintenance markers, using discourse-shift markers would probably place heavy cognitive

demands on the speaker because discourse-shift markers reflect the more complex intention of exerting greater interactional control. While both types of markers function to signal active listening with back-channel feedback, discourse-shift markers function additionally either to claim the floor by directing attention to the speaker or to shift attention to a new topic. Managing such turn-taking and attention focus in discourse is a complex interactional skill (Sacks, Schegloff, & Jefferson, 1978), and the present results are consistent with the idea that carrying out such skills would be more challenging in the L2.

These findings contribute to an understanding of discourse-marker use in institutional health-care interactions. Note that we obtained effects in discourse samples from pain-assessment interviews that consisted of a set of tightly prearranged questions. The pain-assessment interview is a combination of the complaint and verbal examination stages of a medical consultation (ten Have, 1989) and such interviews require one to interact subjectively using interpersonal skills to give psychological support while at the same time providing an accurate diagnosis, all under time pressure. The content of the discourse comes from the patient's report of their pain experiences as elicited by the mostly preset questions posed by the nurse. Given all these demands and constraints, this is why the nurses' discourse-management skills are crucial for a successful interview.

In our study, we had recategorized Vickers and Goble's (2011) discourse-marker sub-types according to two broad discourse-management functions. Considering the importance of emotional support and turn-management skills in medical consultations, we consider this reframing of discourse markers important for an understanding of health-care providers' interactions with patients. Previously, Segalowitz and Kehayia (2011) had focused on the social dimension of health communication within a usage-based perspective (Barlow & Kemmer,

2000). From this perspective, interlocutors involved in health communication are viewed as actively engaged in creating joint attention with one another and in reading their social intentions as well as exchanging information (Tomasello, 2003). Therefore, when the health communication setting is language-discordant (i.e., one speaker has to use their L2 while the other uses their L1), a language barrier can arise due not only to language challenges in using the L2 (e.g., knowing the correct vocabulary) but also to challenges in providing social support in the L2.

This study targeted a nurse population, a relatively underrepresented population in health communication research. Based on a few studies showing that nurse talk is more interpersonal and patient-centred than is physician–patient talk (Candlin, 2006; Dougherty & Lister, 2015; Staples, 2015a), we speculated that skill in using discourse markers would be relevant to nurse–patient interaction, given their role in providing psychological support and turn-management. The results showed that the discourse-shifting function – especially crucial in time-limited medical discourse – is more challenging in the L2 than in the L1. This finding could have implications for language training, especially with respect to training for culture-appropriate health-care delivery. For example, the challenge of establishing a therapeutic relationship with patients is widely acknowledged by researchers studying international nurses' (L2) communication skills and studying health communication more generally (Crawford & Candlin, 2013; Hussin, 2009). In this regard, future directions for research could include identifying which discourse-management skills are the most appropriate to focus on and then, in L2 training, ensuring that nurses acquire stronger discourse-management skills through more effective use of these markers in the target language.

This study is not without its limitations. All participants were female, because of the general gender-distribution imbalance in the nurse population. Gender differences among health professionals in medical encounters have been found to be significant (Gabbard-Alley, 1995; Street, 2002), so the gender distribution in this study may limit the generalizability of the findings. Another limitation of this study lies in some technical aspects of the recording procedure. The speech data are from real-life interactions in a hospital where there was often a great deal of ambient noise, so recording quality may not have been optimal. Although we re-checked the transcriptions with the audio files to ensure transcription accuracy, there were occasions where environmental noise presented a problem. A larger limitation is the fact that we could gather only audio data. It would have been very informative to also have video recordings to allow measurement of gesture and eye contact, given that pragmatic functions of discourse markers can involve both verbal and non-verbal cues (Knight & Adolphs, 2008). For example, nurses may have used non-verbal cues to compensate for their inability to fully use verbal discourse markers. Another potential limitation is that the pain-assessment interview procedure itself is a highly structured and script-based interaction from the nurse's point of view. Despite the fact that nurses were free to elaborate on the questions, they may have felt constrained to primarily cover the preset questions, and this might have restricted the amount and richness of data that could been obtained. Nevertheless, it is interesting that, despite this, the results revealed significant differences in discourse-marker use between L1 and L2 conditions. It should also be noted that only the pain-assessment portion of the interactions was recorded, whereas openings and closings of the interactions were not. These opening and closing periods would have been much less structured and possibly even richer in the use of discourse markers. Having such richer data might make it possible in future research to examine the specific impact that the formulaic

versus more open aspects of the interview protocol have on nurses' discourse-management strategies and their ability to control the conversational flow. It would be valuable, therefore, to replicate this study using less structured interviews and to test the generalizability of results in contexts involving health issues other than pain.

However, despite the various limitations just mentioned, the significant L1–L2 patterns found here suggest that even under such constrained conditions it is feasible to obtain clear, meaningful results. Importantly, it was possible to observe these effects using a within-subjects design in an ecologically valid hospital setting, thereby allowing us to control for individual differences that might otherwise be encountered in a between-group design. These results open up the possibility of follow-up research on important questions such as how discourse-management skills may affect patient satisfaction, how rapport-building is affected by discourse management, and how different manifestations of cultural and linguistic diversity might moderate these effects. Given the ever-growing diversity in language background of health professionals and in patient populations, it becomes especially important to identify those aspects of health communication that may prove challenging to health practitioners and to explore these through controlled studies in the field.

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