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A brief conversation analytic communication intervention can change history-taking in the seizure clinic

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Abstract

Question design during history-taking has clear implications for patients' ability to share their concerns in general, and their seizure experiences in particular. Studies have shown that unusually open questions at the start of the consultation enable patients to display interactional and linguistic markers which may help with the otherwise challenging differentiation of epileptic from non-epileptic seizures (NES). In this study, we compared the problem presentation approach taken by trainee neurologists in outpatient encounters with new patients before and after a one-day conversation analytic training intervention in which doctors' were taught to adopt an open format of question design and recognise diagnostically relevant linguistic features. We audio/video-recorded clinical encounters between ten doctors, their patients and accompanying persons, transcribed the interactions, and carried out quantitative and qualitative analyses. We studied 39 encounters before and 55 after the intervention. Following the intervention, doctors were significantly more likely to use a non-directive approaches to soliciting patient accounts of their presenting complaints that invited the patient to describe their problems from their own point of view and gave them better opportunity to determine the initial agenda of the encounter. The time to first interruption by the doctor increased (from 52 to 116 seconds, p<.001). Whilst patients were given more time to describe their seizure experiences, the overall appointment length did not increase significantly (19 vs 21 minutes, n.s.). These changes gave patients more conversational space to express their concerns and, potentially, to demonstrate the interactional and linguistic features previously found to help differentiate between epilepsy and NES, without impacting the length of the consultations.

1.0 Introduction

1.1 Conversation Analysis and medical communication research

The medical consultation has long been considered a distinct social occasion subject to investigation (Strong, 2001). One research method which analyses the fine detail of the interaction as it occurs in real time is Conversation Analysis (CA) (Maynard and Heritage 2005). CA can demonstrate how subtle differences in the design of what is said can impact the consultation. For example, the way a doctor formulates a question to solicit patients' presenting concerns can subtly change the action the question performs, and how the practitioner solicits the patient's concerns can have consequences for how the patient perceives the practitioner's competence and credibility (Robinson, 2006). The type of question used to open an encounter also affects patients' satisfaction with the consultation, with patients reporting higher satisfaction when general enquiries are used, which allow patients to present their concerns on their own terms (Robinson and Heritage, 2006). In the following section, we describe how in context of clinical presentation with transient loss of consciousness (TLOC), a CA-inspired approach to studying interaction has also been used as a supplementary diagnostic method.

1.2 Linguistic features can be used to distinguish between epilepsy and non-epileptic seizures

Whereas syncope can be differentiated with great sensitivity and specificity from the two other common causes of TLOC on the basis of patients' responses to a small number of factual questions, the differentiation of epilepsy and psychogenic nonepileptic seizures (NES) is more challenging and misdiagnoses are therefore common (Malmgren, Reuber and Appleton, 2012). Prompted by this difficulty, clinicians have turned to sociological and linguistic methods to improve diagnostic accuracy. Initial studies exploring the potential of sociolinguistic observations as aids to the differential diagnosis involved the use of unusually open history-taking questions, to allow patients to choose how and to what extent they wanted to describe their seizure experiences. In these studies, clinicians followed a guide

encouraging patients to set the initial agenda and to talk freely and without early interruption (Schwabe, Howell, and Reuber, 2007; Schwabe, Reuber, Schöndienst and Gülich, 2008).

The analytic approach to these encounters was inspired by, and grounded in, the analytic methodology of CA (Sacks, 1992; Schegloff, 2007), and focused especially on *how* patients talk about their seizures, rather than *what* they say. Two contrasting conversational profiles matching patients' medical diagnoses emerged: whereas patients with epilepsy were likely to volunteer detailed talk about subjective seizures symptoms, patients with NES tended to avoid symptom descriptions and instead focus on the circumstances or consequences of their seizures (Schwabe et al., 2008). The incomplete seizure narratives and inability or unwillingness to topicalize seizure symptoms typical of NES patients (rather than a preferred focus on the situations in which seizures occur or the consequences of seizures) become particularly clear when they are prompted to speak about particularly memorable seizure episodes such as their first, last or worst seizure (for an exemplary case comparison see Plug et al., 2009). These findings do not seem language dependent: having initially been noted in German speaking patients (Schwabe et al., 2008), they have been replicated in clinical encounters with Italian speakers (Cornaggia et al., 2012).

Later studies demonstrated that these features could be used accurately to predict patients' medical diagnoses (Reuber, et al., 2009). Video recordings of first encounters between a neurologist and 20 patients with "gold-standard" medical diagnoses of epilepsy or of NES, supported by the recording of typical attacks on video and EEG recording (VEEG), were analysed independently by two linguists blinded to all other information about the patients. Both linguistic raters correctly predicted 85% of diagnoses, compared to the working diagnoses recorded by Consultant Neurologists prior to admission, which only matched 40% of the VEEG-confirmed diagnoses (Reuber et al, 2009).

It is important to point out that the interviews in these studies, unlike in typical outpatient consultations, started with a very open enquiry (making no mention of seizures, e.g., "How can I help you today?"), which allowed patients to determine the initial focus of the conversation. Even when patients were prompted to talk about specific seizures later on in the consultation, the use of open questions left them with a wide range of appropriate

response options. Unlike traditional medical encounters in which the patient is more constrained by the physician's interactional initiatives (Beckman and Frankel, 1984; Boyd and Heritage, 2006), direct questions (for instance about features such as ictal injuries, tongue-biting, incontinence, seizures from sleep, past medical history or previous treatments) were deliberately avoided to ensure that there was as little restriction of patients' interactional choices as possible (for a more detailed discussion see Plug et al., 2009).

1.3 A communication intervention in routine seizure clinics

This previous research suggests that, in order to be able to elicit and observe the interactional or linguistic features capable of supporting the differential diagnosis of epilepsy and NES in the seizure clinic, doctors would need to pursue the open questioning style used in these research studies rather than the more clinician-dominated traditional approach. A previous communication intervention conducted by Heritage et al. (2007) has demonstrated that it is possible to change the way that doctors design their questions in a way that optimise clinical aims (Heritage et al. 2007). Our study involved a one-day training programme was developed to teach senior neurology trainees (Speciality Registrars) to change their questioning style to be more in keeping with the interview guide used in the studies described above. The intervention involved conversation analytic teaching about question design, and workshops to teach the trainees to recognise the diagnostically relevant linguistic features. The trainees were provided with a script to follow in their consultations.

1.4 Objectives

This study captured and compared the interactional activities of doctors in first seizure clinic encounters before and after the training intervention. It used a mixed methods approach (qualitative/quantitative) to explore whether the one-day communication training intervention changed the communication behaviour of the trainees as intended. It also examined whether there would be practical difficulties with the implementation of the

suggested approach in routine clinical practice, such as extending the duration of clinical encounters.

2.0 Material and Methods

2.1 Data

This study is based on interactions between Neurology Speciality Registrars and patients attending outpatient clinics at the Royal Hallamshire Hospital in Sheffield and the General Infirmary at Leeds, United Kingdom, which were video and/or audio recorded between October 2012 and December 2013. The entire corpus of recordings was transcribed verbatim, and the first three to five minutes were transcribed using conversation analytic conventions (Jefferson, 2004). Participating Speciality Registrars were encouraged to record at least five encounters prior to the one-day communication teaching intervention and a further five encounters after the intervention. Patients newly referred to the participating outpatient clinics with possible seizures were approached consecutively.

All patients who agreed to participate were attending for first appointments. Most had developed seizure-like symptoms within six months prior to referral, although some had been seen in other neurology clinics with similar complaints previously. The main focus of this study was not diagnostic accuracy but the nature of the interaction between clinicians and patients in the opening, problem presentation and history-taking phases of the consultations. However, information on patients' diagnoses is provided for context. Patients' ultimate medical diagnoses were formulated two years after their enrolment in the study on the basis of a clinical record review by neurologists with a particular interest in seizure disorders. Medical diagnoses took account of the outcome of the clinical assessment by the Neurology Speciality Registrar who saw the patient in the context in the study and who discussed each case with a fully-trained neurologist subspecialising in the treatment of patients with seizure disorders at the time. The final medical diagnoses also took into consideration the results of investigations which took place at or after the initial outpatient clinic visit, in addition to considering the outcome of any therapeutic interventions.

2.2 Intervention

The one-day intervention workshop inspired by CA consisted of a range of presentations and interactive data sessions using video data previously recorded in seizure clinics. The sessions began by introducing CA as a method, and then involved interactive workshops based on the Conversation Analytic Role-play Method, playing real data line-by-line in order to enable participants to examine the interactional consequences of the design of questions (Stokoe, 2011). We described previous findings on the differential diagnostic markers. Finally, trainees were presented with a new approach to asking questions (for a more detailed description of the intervention see Jenkins and Reuber, 2014).

Participants were provided with a script which recommended a series of question formats be used in consultations during the post-intervention stage (see table 1 below). The script also included hints to encourage the patient to continue their narrative by displaying recipiency using gaze, nodding, tolerating silence, issuing continuers (such as "mm hm" and "uh huh" which indicate that the recipient is orienting to the talk as continuing; Schegloff, 1982), and repeating what the patient has said to encourage elaboration.

Insert table 1 here

The workshop was delivered once in Sheffield and once in Leeds to facilitate attendance by participating doctors. However, one doctor was unable to attend either session and viewed video-recordings of the workshop sessions.

2.3 Analytic method

2.3.1 Coding strategy

A linguist blinded to the final diagnosis analysed transcripts of the conversations between the patients and the neurologist. Inspired by Heritage and Maynard's (2006) description of the overall structural organisation of the medical visit in primary care, the appointment was

categorised into seven stages (see table 2). Our intervention focused specifically on the first three phases of the consultation which involve gathering information from the patient. In phase four onwards, doctors undertake examinations and/or discussions relating to diagnosis and treatment before closing.

Insert table 2 here

The following aspects of the initial opening phase of the appointment (phase 1) were coded as either present or absent: opening greetings, preliminaries, pre-description seizure questions, history-taking questions prior to problem presentation, and whether the doctor asked to speak to the patient first and any accompanying persons later.

Given the primary focus of this study on intervention-associated changes to the participating doctor's problem eliciting approach, the "problem presentation" phase was examined in more detail. This phase is initiated by the physician soliciting the patient's problem after the opening phase, and the end is signalled by the physicians' initial attempts to shift into a different activity (most commonly structured history-taking) (Heritage and Robinson, 2006). The problem presentation solicits (that is, the doctor inviting the patient to describe their problem, e.g. "How can I help?" or "Describe what happened") were coded as one of three types of specific formulations directed at the patient (requests for description of problems/expectations, seizure description invitations, or closed seizure questions), as addressing the accompanying person, or missing altogether (see table 3).

Insert table 3 here

The 'problem presentation phase' was timed from the end of the problem presentation solicit, up until the first 'turn' (e.g. the time during which one participant talks) issued by the doctor which explicitly sought medical or social information, and therefore signalled the end of the patient's opportunity to present their problem in their own terms. Although the topic of the problem presentation phase could be revisited later on, it was important to use this boundary because it marked the end of the only opportunity during the medical visit in which patients are "systematically given institutional license to describe their illness in their

own terms and in pursuit of their own agendas" (Heritage and Robinson, 2006, p.89). Doctors' information-seeking turns could crucially impact the patient's narrative, shifting the focus onto a specific aspect of the account (such as circumstantial or symptom details), and terminate the opportunity to observe the patient's agenda – something that could affect the interactional observations with differential diagnostic potential described above.

In addition to timing the length of the problem presentation phase, the overall length of the 'information gathering' part of consultation was timed, from the beginning of the consultation until the doctor moved away from gathering information and initiated a physical examination, or discussion of diagnosis and treatment. This part of the consultation included opening and introductions, the problem presentation phase, and more detailed medical history-taking (e.g., phases 1, 2, and 3 in Table 2). We refer to this as the 'history-taking phase'.

2.3.2 Patients' opportunity to present their problem

In addition to timing the length of the problem presentation phase, the analysis also included a linguist rating of the extent to which the patient had an opportunity to present their problem during this phase. Examples of two problem presentation phases were provided, one that was very closed and restricted the patient's presentation, and one that was very open and the patient had ample opportunity to present their concerns. The analysts recorded how strongly the doctor's involvement facilitated or restricted the patient's presentation by providing qualitative comments on interactional cues including displays of recipiency such as continuers (e.g. "mhm"), gaze, nods, the toleration of silences in places that could otherwise represent a speaker transition, and repeats of what the patient has said to encourage elaboration. Further, the analysis noted whether there was an analytic sense in which the patient displayed that their problem presentation was complete (e.g. final intonation alongside sense of narrative completion, or phrases such as "And that's it really.") before the doctor issues their information-seeking question.

These qualitative observations are important because the problem presentation phase could sometimes be very brief although patients had ample opportunity to expand on their

initial turn (for instance as evidenced by long silences and the doctor encouraging elaboration). In addition, the analyst numerically rated the patient's opportunity to present their problem (1= very little opportunity to 5=extensive opportunity).

2.3.3 Memorable seizure episodes

Finally, questions eliciting descriptions of the memorable seizure episodes were coded as missing, closed, category-constrained ("When was your first seizure") or inviting a narrative ("Tell me about your first seizure"). The patient's opportunity to present their description of the memorable episode was then rated in the same way as the problem presentation phase using a scale from one to five. The development of all the coding units was peer-reviewed by specialists in medical communication[1].

2.4 Statistical analysis

The continuous variables (age, and measures of problem presentation and history-taking time) were not normally distributed and non-parametric techniques were used. Differences in coded interactional activities between the consultations recorded before and after the intervention were explored using Mann-Whitney U tests and chi-square tests as appropriate for continuous and categorical data. Two-sided p-values of <0.05 were considered significant.

2.5 Statutory approvals

Ethical permission was granted by the NRES Committee Yorkshire & The Humber - Bradford Leeds, and all patients provided written informed consent.

3.0 Results

The data include audio or video-recordings of 94 consultations with 10 doctors. The doctors ages ranged from 30-40 years, three female and seven male, and in their 6-10th year of postgraduate medical training.

The 94 patients all presented to the seizure clinic for the first time (56 were accompanied, 60%). The mean duration of history-taking phase (the overall phases of information-gathering, prior to examination and/or discussions surrounding diagnosis and/or treatment) was 20 minutes (range 6-59 minutes). There was no significant differences in the duration of history-taking phases in accompanied and unaccompanied consultations. See table 4 for demographic and clinical information.

Insert table 4 here

3.1 Duration of problem presentation and history-taking phases

Two consultations were later excluded from the analysis because the recording began after the problem presentation had been issued. The length of the problem presentation phase significantly increased following the intervention, from a mean of 52 seconds (SD=66.1) to 116 seconds (SD=108.6), (U=-485.500, Z = -4.286, p<0.001). The total length of the history-taking phase increased slightly after the intervention but this was not significant (pre-intervention M=19.4 minutes, SD= 9.5; post-intervention M=21.2 minutes, SD=9.0, U= 877.5, Z = -1.18, p=0.24).

3.2 Structure of the consultation

Differences between pre- and post-intervention consultations are displayed in table 5. After the intervention the doctors were less likely to begin the interaction by referring to the reason for visit or issue preliminary closed questions. Further, the problem presentation solicit changed, with doctors more likely to invite a description of the patient's problem following the intervention, in contrast to specifically seeking a seizure description. Doctors were also more likely to ask patients about their first, worst and last seizures following the

intervention. Table 5 also shows that patients' opportunity to present their problem significantly increased following the intervention, from a rating of 2.42 to 3.48.

Insert table 5 here

4.0 Discussion

This study explored whether a one-day communication training intervention could change the communication behaviour of Neurology Speciality Registrars conducting history-taking in outpatient seizure clinics. We found that following the conversation analytic communication intervention, doctors were significantly less likely to ask closed questions at the start of the consultation. They were more likely to use a less directive problem presentation solicit, inviting the patient to present their problems or expectations, rather than specifically to request a seizure description.

Previous qualitative analysis of these different question designs demonstrates that, whereas formulations designed to elicit seizure descriptions establish the seizure as the topic of enquiry, more open problem presentation solicits allow the patient to describe their issues in their own terms (Jenkins and Reuber, 2014). This change is essential if clinicians want patients to demonstrate the linguistic and interactional features which have previously been shown to have the potential to help with the differential diagnosis of epilepsy and NES and increase diagnostic accuracy (Reuber et al., 2009; Schwabe et al., 2008), for instance whether patients' primary focus will be on their own seizure experiences (more likely in patients with epilepsy) or the situations in which seizures have occurred and seizure consequences (more typically topicalised by patients with NES).

Our quantitative and qualitative analyses show that, across the complete data set, patients' opportunity to present their problems were significantly greater following the intervention. For instance, after the intervention, doctors were more likely to give patients the opportunity to extend the presentation of their concerns by displaying an interest in

receiving more information from the patient and encouraging elaboration even when the patient had signalled that their presentation was complete. These changes provided greater opportunity for patients to talk uninterrupted, or provide additional information, resulting in the problem presentation phase in consultations after the intervention being more than twice as long as in the pre-intervention consultations. However this did not have a significant effect on the overall length of the history-taking phase of the consultations. This finding suggests that the proposed use of a more open questioning style would not impinge on the time restraints of routine seizure clinics.

The intervention was also successful in terms of getting doctors to ask patients to describe memorable seizure episodes, specifically the first, worst and last seizures that the patient experienced. This provided further opportunity for the patient to deliver narratives which could make available linguistic features relevant to their diagnosis.

The generalisation of our findings is limited by the fact that all participants in the training days were Neurology Speciality Registrars. We chose to target doctors of this level of seniority because they are expected to make diagnostic decisions independently but are still undergoing training (and perhaps are at a stage of their medical careers when their history-taking approach can still be modified relatively easily). It is possible that the one-day intervention may have been less effective in doctors with a more limited understanding of the diagnostic challenge (e.g. fewer years' experience) or with a more established clinical routine (e.g. greater clinical experience). Future studies could explore the efficacy of this intervention with clinicians with other levels of seniority. The generalisation of these findings may also be limited by the particular demographic and clinical case mix captured. The significant differences in case composition between the Leeds and Sheffield cohorts highlight the variability of clinical "first seizure" settings. We are also unable to say whether the intervention had a permanent (or at least sustained) effect on the interactional activities of doctors. Interactions were recorded up to 14 months after the intervention, but the participants may have made particular efforts to adhere to the advice they had received because they knew that their interactions were to be recorded and analysed. It is conceivable that the training would have been less effective, if the post-intervention interactional activities of participants had not been subject to recording and analysis.

5.0 Conclusion

Despite these limitations, this study provides strong support for the potential of a very short intervention to change doctors' questioning techniques in the seizure clinic. The changes clinicians made after the intervention provided patients with a greater opportunity to describe their problems from their own point of view and to demonstrate the interactional and linguistic features previously found to help differentiate between epilepsy and non-epileptic seizures. The changes did not cause a significant increase of the length of the clinic interactions. Future studies will need to show whether clinicians are able correctly to identify the typical conversational profiles associated with epilepsy and NES and to realise the diagnostic potential of the more open mode of questioning.

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