Physician–patient dialogue surrounding patients’ expression of concern: applying sequence analysis to RIAS

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Abstract

The aim of this study was to analyse with sequence analysis physician–patient dialogue surrounding patients’ expression of emotional cues. Two samples, sample 1 consisting of 36 cancer patient consultations conducted by four oncologists, and sample 2 consisting 79 consultations of haematology patients conducted by nine specialists, were audiotaped and coded with the Roter Interaction Analysis System (RIAS). Sequence analysis by means of a generalized sequential querier (GSEQ) was applied to the coded data. Lag sequential analysis (analysed using RIAS categories) showed that certain behaviours of physicians corresponded with patients’ expressions of concern. Physicians in both samples used silence and minimal encouragers before patient concern. The oncologists also used optimistic and affirming responses. The most common physician responses to patients’ concern were minimal encouragers or affirming and optimistic responses. Sequence analysis based on RIAS coding appears to be a promising method for the study of doctor–patient dialogue and should be utilized more in studies of the communication process in medical consultations. © 2003 Elsevier Ltd. All rights reserved.

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Introduction

Patients seldom verbalize their concerns and emotions directly and spontaneously, but often exhibit indirect cues that something problematic is at stake. A core skill for physicians is therefore to recognize patients’ emotions that are clinically relevant but not directly expressed (Suchmann, Markakis, Beckman, & Frankel, 1997). Patient cues and the relevant physician responses to these cues may be seen as the key to building a trusting physician–patient relationship (Levinson, Gorawara-Bhat, & Lamb, 2000).

Patients’ emotional cues are typically embedded in the dialogue concerning the medical information (Butow, Brown, Cogar, Tattersall, & Dunn, 2002). In primary care and surgical settings, such cues were given in about half of all consultations (Levinson, Gorawara-Bhat, & Lamb, 2000). In a study in an oncology setting, patients gave about two emotional cues per consultation, and several cues that indicated a need for information (Butow et al., 2002; Levinson et al., 2000).

The content of patients’ emotional cues appears to differ depending on the medical context. In a surgery context, most of the cues were related to feelings about the biomedical condition. In a general practice context, however, most cues were related to psychological and psychosocial topics, and only a few were related to the disease as such (Levinson et al., 2000).

Physicians often bypass their patients’ cues (Butow et al., 2002; Levinson et al., 2000). Butow and colleagues (2002) have shown that informational cues are more often adequately responded to than emotional cues.

The fact that patients’ concerns are often communicated indirectly may reflect individual differences in
the extent to which patients feel comfortable discussing emotional and psychosocial topics. Maguire and colleagues found that patients often wanted to spare the physician from engaging in topics related to difficult emotions (Maguire, Faulkner, Booth, Elliott, & Hillier, 1996). Patients visiting departments of family medicine are more likely to volunteer information about the health issues affecting their quality of life if they believe it is the physician’s job to ask about these issues (Street, Cauthen, Buchwald, & Wiprud, 1995). In oncology, patients are found to be willing to discuss symptoms, physical functioning, and emotional functioning, but as many as 25% of patients only discuss the latter if the physician initiates the discussion (Detmar, Aaronson, Wever, Muller, & Schornagel, 2000).

That patients express their concerns and that the concerns are acknowledged by the physician, has been shown to be important for cancer patients’ adjustment to the disease and for their psychological health (Fallowfield, Ratcliffe, Jenkins, & Saul, 2001; Heaven & Maguire, 1998; Maguire et al., 1996; Maguire, 1985). To be able to identify patients’ emotional concerns when they live with a serious disease is therefore an important task for the physician treating the patient (Maguire, 1985).

In communication, the contributions to conversation raise obligations as well as opportunities for the partner’s subsequent response (Grauman, 1990; Grauman, 1995). Therefore in order to improve our understanding of the interaction process around the expression of cues, there is a need to study the physician’s and the patient’s mutual influence on each other by exploring sequential dynamics: what communication behaviours from the physician as well as from the patient precede the cue and how the physician responds when the patient exhibits cues.

Sequential analysis is a method especially suited for exploring such relationships (Bakeman & Quera, 1995; Bakeman & Gottman, 1997; Eide, Quera, & Finset, 2003). In this paper, we apply sequential analysis to study the patterns of communication around the expression of concern. The research questions addressed in this paper are

1. What is the pattern of the physician’s communication before the patient exhibits cues?
2. What are the most likely patient communication elements before the patient exhibits cues?
3. What is the pattern of the physician’s communication after the patient exhibits cues?

**Method**

This paper presents results from two different samples from two Norwegian hospital clinics. We first conducted the sequential analysis in the small sample presented below. We found what we thought were interesting results, but it was questionable whether generalisations could be made to other patient and physician groups. We therefore conducted the analysis in the second sample in order to establish a better foundation for possible generalisations.

**Participants and design**

**Sample 1**

The sample consisted of 36 consultations conducted by four experienced oncologists aged 45–55 (two females and two males). A regular day of the week was chosen for each physician, and patients having an appointment with the specific physician at the oncology outpatient clinic on that day were invited to participate in the study. The response rate was 74%. Of the 36 patients who consented to be participants, 16 were females (44.4%) and 20 were males (55.6%). Seven patients had breast-cancer, five colorectal-cancer, nine head-and-neck cancer, and 14 urological and male genital cancers. The mean age of the sample was 49.4 years (SD 13.2). Nearly all consultations were outpatient follow-up visits after inpatient treatment, and in 86% of cases the patient and physician had previously met each other. Consultations lasted for a mean of 8 min, 13 s (SD 4'19") with a range from 3'24" to 20'38". The sample and the consultations are described in detail elsewhere (Eide, Graugaard, Holgersen, & Finset, 2003).

The physicians were not aware of the research questions in this study. Due to the small cross-sectional sample of patients and the convenience sample of physicians, this study was considered as a pilot study. The Regional Ethical Committee approved the study.

**Sample 2**

Sample 2 consisted of 79 initial and follow up consultations from a prospective study with the main purpose to study changes in patient–physician communication over time in a prospective design in a haematology outpatient clinic (Graugaard, Holgersen, Eide, & Finset, Submitted). Seven physicians conducted the consultations with three senior physicians doing most of the consultations. The Regional Ethical Committee also approved this study.

About 1 month prior to their first visit, patients received a written invitation to participate in the study. A senior physician assessed the inclusion criteria in those patients that were referred to the clinic. Patients were included if they (a) were between the ages of 18 and 75; (b) most probably would not require inpatient care, and (c) were referred to the clinic for the first time. Sixty consecutive patients were invited to participate, 52 of which agreed to be included: 31 men (median age 61 years, range 23–75) and 21 women (median age 52 years, range 27–75). Four patients dropped out during the
course of the study. Most of those who declined to participate or dropped out were the patients with the most severe diagnoses. A few stated that they did not want to participate because they did not want to take the extra time to fill in the questionnaires.

Due to technical problems, one third of the original taped consultations were not available for analysis in this study. In Table 1 (see above) the distribution of the 79 consultations with 41 of the patients from the prospective study used in this paper are displayed. Statistical analyses showed that the sample in this study did not differ from the original sample on main disease-, socio-demographic- and psychosocial variables.

Process analysis

The Roter Interaction Analysis System (RIAS) is a system for microanalysis developed for content analysis of physician–patient dialogues and is the most widely used system in this area of research (Roter, 1977; Roter, 1995). The unit of analysis in RIAS is an utterance, defined as the smallest speech segment that expresses or implies a complete thought and to which a coder can assign a classification (Roter, 1995). This may be a single word, a phrase, a clause or a complete sentence. All utterances made by the patient and the physician during the consultation are coded and classified in one of the 39 exclusive and exhaustive RIAS categories. Fourteen of these categories are classified as “socio-emotional”. The remaining 25 are “task-focused” and consist mainly of open and closed questions, information transfer, and counselling. We also included a category called “silence”, coded whenever either patient or physician was not speaking during the consultation.

The patient RIAS category of main interest in this study was “concern”. The other categories were lumped together in clusters in order to avoid too many empty cells in the sequence analysis. The definitions of the “concern” category and of the clustered categories are displayed in Table 2.

Inter-rater-reliability

Sample 1

In sample 1 a total of 10 consultations (28%) were used for the calculation of intra- and inter-rater-reliability. Kappas of 0.40–0.60 are characterised as fair, 0.60–0.75 as good, and over 0.75 as excellent (Bakeman, 2000). The Cohen’s Kappa coefficient for the timed patient concern was 0.43. The cluster coefficients were between 0.73 and 0.89 for the physician clusters and between 0.65 and 0.90 for the patient clusters. These coefficients are reported in detail elsewhere (Eide et al., 2003).

Sample 2

Three raters coded the haematology sample. Cohen’s Kappa between two of the raters was computed for each of eight consultations and the mean Kappa coefficient for these consultations is displayed in Table 2. To enable comparison with the traditional way of making inter-rater-comparisons for RIAS categories, we also computed Pearson’s correlation coefficient for 16 consultations using both frequency and duration. These coefficients are also displayed in Table 2. The interrater-reliability (Spearman Rank Correlation Coefficient) between the two raters reported here and the third
coder were also excellent, patient clusters were between 0.88 and 0.94, and physician clusters were between 0.84 and 0.92.

Sequence analysis

The OTS-program (Observer to SDIS conversion program) was used to transform the data from the Observer to a format that was suitable for sequence analysis in SDIS (Bakeman & Quera, 2000; Quera & Bakeman, 2000). We applied a generalized sequential querier, the GSEQ (Bakeman & Quera, 1995) for analysing sequential patterns between patient concern and communication elements.

In sequence analysis, the unit of analysis is the association between a given behaviour and a subsequent target behaviour. As the unit of behaviour we have applied an utterance as defined within the RIAS (see definition above). A distinction should be made between utterances and turns. A turn is what a speaker says between the other speaker’s talk, “the period of time at any point in the conversation when a specific participant has the right and obligation to speak” (Ford & Thompson, 1996; Sandvik et al., 2002). A turn can consist of several utterances.

The association between behaviours can be analysed at different lags. Lag 1 refers to the association between a given behaviour (here an utterance in RIAS) and the immediately following (target) behaviour; Lag 2 indicates the association between the given behaviour and the second following behaviour, etc. Target behaviours preceding a given behaviour can be investigated in the same way, expressed as negative lags. Although time for behaviours was recorded in terms of 100 ms-units, sequential analysis was performed on events, i.e., Lag 1 means “the next event or utterance”, not “the next time unit”.

In this study the given behaviour is the patient’s utterance of a “concern” as defined within RIAS. The target behaviour is the physician’s utterances following (positive lags) of preceding (negative lags) the “concern”. Since the patient’s and the physician’s
 utterances are coded in separate channels and since silence is coded as an utterance, silence on the part of a physician may be coded as a target behaviour. The target behaviours may be within the same turn or not, and there may be other patient utterances than “concern” between target behaviours.

Measure of global sequential association

The degree of global sequential association between physician and patient behaviour (i.e. whether the sequence of utterances in the respective categories between patients and physicians in general occurred by chance or not) was tested with contingency tables and chi-square. We produced tables with all the behavioural categories of one group (patients or physicians) along the rows (given behaviours), and the behavioural categories of the other group along the columns (targets behaviours). Twenty such tables were produced with physician and patient behaviour as given behaviours, at Lags 1–5, with target behaviours both before (negative lags) and after (positive lags) the given behaviour.

An example of a first lag table where patient communication behaviour is the given behaviour “before” and the physician behaviour is the target behaviour “after” is displayed in Table 3. To determine whether the associations between the utterances of physicians and patients occurred by chance, the chi-square statistic for each lag table was calculated. A significant chi-square value for the whole table indicates that the association between the variables is not determined by chance, and that a given category of utterances is followed (or preceded) more often by some categories and less often by others. Having established a global sequential association between physician and patient behaviour, it is meaningful to look further into which specific pairs of categories are associated, and the strength of these associations (Bakeman & Quera, 1995).

Associations between categories: lag analysis

To determine the strength of the individual associations between the given category chosen for special attention (patient concern) and specific target categories of utterances, adjusted residuals and Yule’s Qs were calculated. Adjusted residuals are standardized raw residuals and can be inspected to determine whether a target behaviour occurs significantly more or less often than expected after each given behaviour, and which given behaviour tends to occur significantly more or less often before each target behaviour within a specific table. An adjusted residual above 1.96 or below –1.96 is regarded as significant where alpha = 0.05 (Bakeman & Quera, 1995). A value above 1.96 means the behaviour occurred significantly more often than expected by chance, and a value below –1.96 means that the behaviour occurred significantly less often than expected by chance. However, by using adjusted residuals it is not

Table 3

<table>
<thead>
<tr>
<th>Lag 1 table with several patient communication variables in sample 2 as given (before onset of concern) and physician communication elements as targets (after onset of concern)</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern</td>
<td>Approval behaviour</td>
</tr>
<tr>
<td>60.32</td>
<td>14.74</td>
</tr>
<tr>
<td>13.32</td>
<td>6.51</td>
</tr>
<tr>
<td>6.84</td>
<td>2.98</td>
</tr>
<tr>
<td>2.98</td>
<td>1.34</td>
</tr>
<tr>
<td>1.34</td>
<td>0.64</td>
</tr>
<tr>
<td>0.64</td>
<td>0.31</td>
</tr>
<tr>
<td>0.31</td>
<td>0.24</td>
</tr>
<tr>
<td>0.24</td>
<td>0.06</td>
</tr>
<tr>
<td>0.06</td>
<td>0.02</td>
</tr>
<tr>
<td>0.02</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Note: Adjusted residuals: *p < 0.05. **p < 0.01. ns = not significant; Yule’s Q’s.
possible to make cross-table comparisons independent of the number of tallies in each table, since adjusted residuals are dependent on the sample size.

Yule’s \( Q \) is a test specific to \( 2 \times 2 \) tables that can be used to determine the strength of an association, similarly to the correlation coefficient (Bakeman, 2000). The range is from +1 for a perfect positive relationship to −1 for a perfect negative relationship. Unlike adjusted residuals, Qs are not dependent on sample size, and can therefore be used for making cross-table comparisons when the total tallies in the tables being compared differ.

**Chain analysis**

In a lag analysis, associations between given behaviours and individual target behaviours at specified lags are analysed. Similarly, we can study the association between given behaviours and a specified chain of subsequent or preceding behaviours. The same statistical procedures are applied in chain analysis as in lag analysis of individual target behaviours, but new codes need to be defined as specific chains of behaviour before the lag analysis is carried out.

**Results**

**Global sequential association**

The associations between six of the patient categories as given behaviour and six of the physician categories as subsequent target behaviours in sample 2 at Lag 1 are presented in Table 3. At Lag 1, several behaviours did not concur. In the first analysis all the variables described in Table 2 were included. To avoid too many empty cells we performed the rest of the analysis with the variables that had a co-occurrence with patient concern. We omitted patients asking questions, and physician informal talk. In the chi-square analysis for the whole table, there was a highly significant deviation from a chance distribution of frequencies in the 36 boxes (six patient categories × six physician categories; chi square = 1356.3, df = 25, \( p < 0.0001 \), expected frequencies < 5 was 16.7% and <3 was 11.1%). At all other lags both positive (association with a subsequent target behaviour) and negative (association with a preceding target behaviour), the chi-squares were also highly significant (\( p < 0.0001 \)).

**Physician communication before patients’ expression of concern**

Adjusted residuals showed that the physician communication element in both samples occurring most commonly at Lag 1 before the utterance of concern was silence on the part of the physician, indicating a small pause in the dialogue immediately preceding patient concern (See Tables 4 and 5). At Lag 2 before the utterance of concern, the most common physician category was minimal encouragers in both samples. At Lag 3 before the utterance of concern, the samples showed different significant behaviours: in the oncology sample there was a significant association with physician affirmation, and in the haematology sample there was an association with physician giving minimal encouragers. In the oncology sample the physician gave fewer minimal encouragers than expected by chance (adjusted residual = −2.49, \( p < 0.5 \), Yule’s \( Q = −0.78 \)) at Lag −1 and in the same sample at Lag −2 silences occurred less often than expected by chance (adjusted residual = −2.25, \( p < 0.5 \), Yule’s \( Q = −0.34 \)).

We also wanted to determine which specific RIAS codes in the affirmation cluster were responsible for the significant association. When we performed the analyses with the RIAS category reassurance/shows optimism as

| Table 4 | Physician communication elements before patient concern in sample 2 (Lags 1–3 before concern is uttered) |
|-----------------|----------------------------------|-----------------|-----------------|-----------------|
| **Physician behaviour** | **Lag 1** | **Lag 2** | **Lag 3** |
| **Affirmation** | 0/2.4 | 3/2.1 | 3/2.6 |
| | (−1.62 /ns/−1.0) | (0.63 /ns/0.19) | (0.24 /ns/0.07) |
| **Minimal encouragers** | 4/4.3 | 12/5.2 | **14/7.0** |
| | (−0.15 /ns/−0.04) | *(3.20 /*/*0.49)* | *(2.88 /*/*0.43)* |
| **Psychosocial exchange** | 0/0.5 | 0/0.5 | 0/0.6 |
| | (−0.68 /ns/−1.00) | (−0.72 /ns/−1.0) | (−0.75 /ns/−1.0) |
| **Medical information** | 4/8.6 | 7/8.4 | 6/10.6 |
| | (−1.81 /ns/−0.43) | (−0.55 /ns/−0.11) | (−1.65 /ns/−0.34) |
| **Silence** | **29/20.2** | 16/20.4 | 19/19.6 |
| | *(2.91 /*/*0.50)* | (−1.44 /ns/−0.23) | (−0.20 /ns/−0.03) |

Frequency/expected frequency.

(Adjusted residuals/\( p \)-value (\(^* p < 0.05; ^{* *} p < 0.01; \text{ns} = \text{non significant}\)/ Yule’s \( Q \)).

Significant results in bold italics.
a lone standing behaviour, there was a significant association (p<0.0001) between concern and reassurance /shows optimism in the third lag before the utterance of concern. There was no relationship with the cluster containing the remaining behaviours, which occurred more rarely in consultations.

None of the other communication elements were significantly positively or negatively associated with the patients’ expression of concern before the utterance of concern.

In the following excerpt from the transcription of the dialogue, an example is given from sample 1. Here, the order of utterances matches exactly the three categories from each lag in the lag analysis occurring more frequent than expected: affirmation followed by minimal encourager and then silence:

Doctor: That there does not seem like cancer (Affirmation)

Patient: No, it is what we thought was damage from the radiation (Medical information)

Doctor: Yes (Minimal encourager)

Doctor: Silence

Patient: Well, but, it seems that it gets worse and worse, and not better and better (Concern) (RIAS-codes)

As we see in this example, the content of the first remark made by the physician is that of giving medical information. This utterance is, however, scored as reassurance/shows optimism (RIAS code) according to RIAS rules because of the intonation.

The lag analysis showed the relationship between the given variable (patient concern) and individual physician target utterances preceding concern at different lags. That does not mean that the same sequence across lags, as seen in the illustration, necessarily occurs frequently. We therefore wanted to test whether the sequence—of physician affirmation followed by minimal encourager followed by silence before the patients expressed concern—represented a statistically significant chained pattern. To test this, we recoded the variables by means of the CHAIN command in the software program GSEQ. A pattern of minimal encourager followed by silence was a pattern that the physicians often used. However, this pattern occurred significantly more often than by chance before several patient communication behaviours (medical information, negative responses, concern, affirmation, and psychosocial issues), and not as a specific pattern before patient concern for the whole sample. We found no overall significant chained pattern of physician communication behaviour specifically related to concern.

Table 5: Significant physician behaviour before and after the expression of concern: comparison of different patient groups

<table>
<thead>
<tr>
<th>Lag</th>
<th>P-concern</th>
<th>Lag 1</th>
<th>Lag 2</th>
<th>Lag 3</th>
<th>Lag 4</th>
<th>N=95</th>
<th>N=122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lag 1</td>
<td>Affirmation 9/4.6</td>
<td>Minimal encouragers 10/7.5</td>
<td>Silence 26/13.8</td>
<td>No specific significant behaviour</td>
<td>No specific significant behaviour</td>
<td>Sample 1</td>
<td>Sample 2</td>
</tr>
<tr>
<td>Lag 2</td>
<td>Affirmation 9/4.6</td>
<td>Minimal encouragers 10/7.5</td>
<td>Silence 26/13.8</td>
<td>No specific significant behaviour</td>
<td>No specific significant behaviour</td>
<td>Sample 1</td>
<td>Sample 2</td>
</tr>
<tr>
<td>Lag 3</td>
<td>Affirmation 9/4.6</td>
<td>Minimal encouragers 10/7.5</td>
<td>Silence 26/13.8</td>
<td>No specific significant behaviour</td>
<td>No specific significant behaviour</td>
<td>Sample 1</td>
<td>Sample 2</td>
</tr>
<tr>
<td>Lag 4</td>
<td>Affirmation 9/4.6</td>
<td>Minimal encouragers 10/7.5</td>
<td>Silence 26/13.8</td>
<td>No specific significant behaviour</td>
<td>No specific significant behaviour</td>
<td>Sample 1</td>
<td>Sample 2</td>
</tr>
</tbody>
</table>

(Adjusted residuals/p<0.05; *p<0.001; Yule’s Q)
The physician’s communication after the patient’s expression of concern

After the concern is uttered, the most likely physician behaviour at Lag 1 differs for the two samples. The physician most often applies minimal encouragers in sample 1 and affirmation or minimal encouragers in sample 2. At Lag 2 after the concern is uttered, the most likely behaviours are minimal encouragers in both samples. No other communication elements are significantly associated as a response after the expression of concern. At Lag 1, giving medical information occurs less often than expected by chance in sample 1, and at Lag 2, silence occurred less often than would have been expected by chance (observed frequency 7, expected frequency 16.3, adjusted residual \(-3.24\) p-value <0.0001 and Yule’s \(Q\) = 0.57).

We also performed the analyses with physician “reassurance” (RIAS category) as a separate variable in the lag analyses and the rest of the categories in the affirmation cluster as another variable and found that “reassurance” was responsible for the significant association with the affirmation cluster.

To test whether there was a chained pattern, in this case, whether concern was followed by affirmation and then minimal encourager (sample 2), we recoded the variable with the chain command and repeated the sequence analysis with the recoded variable. We found no overall significant chained pattern. The frequencies were also very small. It is therefore possible that chained patterns do exist, but in order to detect them it would be necessary to gather considerably more data. The following excerpt illustrates the communication behaviours preceding the utterance of concern and the physician’s response.

Patient: I would be a bit surprised [Doctor: Hm (Minimal encourager)] if I got it [Doctor: Mmm’ (Minimal encourager)] again now. (Psychosocial issue). In the beginning I was kind of more prepared for that. (Psychosocial issue)

Doctor: It has something to do with the passing of time (Affirmation), don’t you agree? (Affirmation)

Patient: Yes, yes (Approval), and now it is five years ago. (Medical information)

Doctor: Yes. (Minimal encourager)

Patient: So then could one possibly (Concern).

Doctor: (Silence)

Patient: …well, I know of cases where … (Concern)

Doctor: No, we can never be completely sure (Affirmation), you know (Minimal encourager), but the longer the time passes … (Affirmation)

Patient: Nevertheless, one would have had a nice time, have to remember that. (Psychosocial issue)

Here the frequent use of minimal encourager before the utterance of concern is illustrated and also the affirmation and minimal encouragers afterwards by the physician. The patient first makes a positive remark about the low likelihood of a relapse, while the physician utters a minimal encourager “Mmm’s”. The patient’s remark is scored in the RIAS category “reassures/shows optimism”, clustered in the “psychosocial issue” cluster. No silence was registered before the first concern, but the physician was silent between the two concerns the patient utters. Also in this example the content of the affirmation is giving medical information, and it is the emotional intonation in the physician’s voice that makes that it is scored as reassures/shows optimism in the RIAS.

Patient communication elements at lags before the expression of concern

We also wanted to explore the patients’ own communication behaviour preceding the utterance of concern. The behaviour then tested could be within the same turn depending on how many utterances that turn consists of, or it could be the preceding turn if the turn only consisted of one utterance. As is shown in Table 6, several concerns are displayed after each other. When patient categories are used both as given and as target behaviour, we are investigating the sequential order of patients’ communication. At Lag 1 silence is the significant behaviour. This means that the patient is

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Table 6

<table>
<thead>
<tr>
<th>Patient behaviour</th>
<th>Lag 1</th>
<th>Lag 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern</td>
<td>0/0.2(^a)</td>
<td>5/0.2</td>
</tr>
<tr>
<td></td>
<td>(−0.45 /ns/ −1.0)</td>
<td>(13.04 / ***/ 0.96)</td>
</tr>
<tr>
<td>Affirmation</td>
<td>0/8.7</td>
<td>2/8.8</td>
</tr>
<tr>
<td></td>
<td>(−3.34 /***/ −1.0)</td>
<td>(−2.70/ ***/ −0.70)</td>
</tr>
<tr>
<td>Psychosocial topics</td>
<td>2/2</td>
<td>0/1.6</td>
</tr>
<tr>
<td></td>
<td>(−1.52 /ns/ −1.0)</td>
<td>(−1.32/ns/−1.0)</td>
</tr>
<tr>
<td>Informal communication</td>
<td>3/1.2</td>
<td>4/1.1</td>
</tr>
<tr>
<td></td>
<td>(1.72 /ns/0.46)</td>
<td>(2.80/ ***/0.60)</td>
</tr>
<tr>
<td>Medical information</td>
<td>3/4.2</td>
<td>4/3.3</td>
</tr>
<tr>
<td></td>
<td>(−0.63/ns/−0.18)</td>
<td>(0.38 /ns/0.10)</td>
</tr>
<tr>
<td>Silence</td>
<td>35/24.52</td>
<td>16/16.0</td>
</tr>
<tr>
<td></td>
<td>(3.35 / ***/0.60)</td>
<td>(0.0 /ns/0.00)</td>
</tr>
</tbody>
</table>

\[\text{Adjusted residuals}/p\text{-value} \quad (*p<0.05; \quad **p<0.01; \quad \text{ns= non significant})/ \quad \text{Yule’s } Q\]

Significant results in bold italics.

\(^a\) Frequency/expected frequency.
silent while the physician has his turn and is saying something or being silent. As is shown in the excerpt above, the physician is silent between two concerns. Then at Lag 2, concern is a statistical significant behaviour with a very strong association to the next concern. At Lag 3, silence is again the significant behaviour, and at Lag 4 there is concern once more.

Discussion

The physician communication elements found to be statistically significant related to patients’ expression of concern were the use of silence, minimal encouragers and affirmations. This was consistent in both samples investigated in this paper. This is somewhat surprising considering that the related literature typically describes the use of open-ended questions and focused open questions as important tools to facilitate the expression of the patient’s view, symptoms and concerns as well as resources (Fallowfield et al., 2002; Maguire et al., 1996). In the patient-centred literature, physicians are advised to ask their patients the question: “What are you most concerned about?” or “When you think about your disease, what worries you the most?” (Lo, 1995). In cancer care, the context of the consultation is the development of the disease, the effect of treatment and the occurrence of possible side effects. In this context, direct communication about patients’ inner fears is probably often too anxiety provoking. In the present study, however, no concerns were uttered by patients following a direct question by their physician. Direct questioning is perhaps experienced by the patient as too intrusive; accordingly, giving affirmations, optimistic responses and facilitating behaviour as minimal encouragers may be more sensitive ways for physicians to encourage patients to vent their concerns. Another explanation for not asking directly about concerns when a cue is given could be that there is a time limit in this type of consultation. Physicians often complain that do not have enough time to conduct the consultations and address both the medical problem and the emotional issues around the medical concerns. The consultations in this paper in both samples tended to be rather short and disease-focused.

Where several concerns occur close together, as was often the case in the analyses of the patients’ behaviour, it is difficult to decide whether an affirmation is a response to or precipitates the concern. Visual inspection of our data indicated that an affirmative statement from the physician may precede even the first concern in a series of concerns, suggesting that emotional support tends to elicit concern. The main characteristics of the affirming responses are that they are reassuring and have a positive and optimistic emotional undertone that transfers caring to the patient. Such a caring interest may be decisive for the patients feeling safe enough to express their concerns further. The concern is often not expressed immediately after the affirmative statement: it appears that patients need time to assimilate or incorporate the physician’s care and first respond with their concerns after some delay. Minimal encouragers and silence also appear to have important roles in this process. This finding does not correspond with Maguire et al. (1996) who found that reassuring behaviour tends to block further disclosure of concern.

The fact that Maguire’s findings differ from the results presented in this paper could be due to different definitions of the concepts. To investigate this further, the same data should be coded with both methods. When we included giving reassuring and optimistic responses in the affirmation cluster, we thereby implied that the reassuring behaviour contributes positively in the dialogue and is therefore an appropriate response. In this paper we have only reported the occurrence of behaviours, whereas an evaluation of appropriateness is not made. This should be done in future studies with methods designed for this purpose, as for instance Carkhuff’s Empathy Scale (Butow et al., 2002), Applegate and Burleson’s Comforting Scale (Bylund & Makoul, 2002) or Suchmann et al.’s “Missed Empathic Opportunity Method” (Suchmann et al., 1997).

The RIAS category of concern is the only type of utterance that has been classified as a cue in our study. It is possible that there are also other important emotional cues given not covered by the RIAS category of concern that should be important for the physician to attend to. Other ways especially designed for identifying cues, such as Butow et al.’s division of “emotional and informational cues” (Butow et al., 2002) or Suchmann et al.’s “Missed Empathic Opportunities” (Suchmann et al., 1997) should be applied together with the RIAS to find out the proportion of cues that are covered with the RIAS.

By focussing on the patient category “concern” we have been presented with the methodological problem of how to interpret interrater-reliability coefficients found for seldom occurring behaviours. A simulation study has shown that, for observers having a theoretical accuracy as high as 0.80, a Cohen’s kappa coefficient as low as 0.40 can be obtained for a system of categories as a whole when some categories are rare (Bakeman, Quera, McArthur, & Robinson, 1996). In other words, kappa is not always a good indicator of true reliability. Being empathic, understanding and interpreting other peoples’ feelings is a difficult endeavour. One study exploring this issue found that the overlap was about 25% between what a person actually felt and what an observer scored (Ickes, Marangoni, & Garcia, 1997). It is therefore a question of what level of reliability may be reasonable to expect when examining phenomena that are by nature ambiguous.
Conclusion

Sequence analysis showed that different physician and patient behaviours were statistically significant associated with patients’ exhibiting cues. This method for investigating physician–patient dialogue seems to contribute complementary information to that offered by traditional statistical analyses, thus enhancing the knowledge of physician–patient relations.

Our finding that the same physician behaviour related to patient cues in two different patient samples in a specialist setting makes us rather confident that we can generalize to other specialist settings. More studies applying sequential analysis are needed to improve our understanding of the optimal ways of communicating in short, disease-oriented consultations in the specialist out-patient setting.

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