The Impact of Communication Skills Training in Oncology: a Linguistic Analysis

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Abstract This study aimed to investigate the impact of a communication skills training (CST) in oncology on clinicians' linguistic strategies. A verbal communication analysis software (Logiciel d'Analyse de la Communication Verbale) was used to compare simulated patients interviews with oncology clinicians who participated in CST ($N=57$) (pre/post with a 6-month interval) with a control group of oncology clinicians who did not ($N=56$) (T1/T2 with a 6-month interval). A significant improvement of linguistic strategies related to biomedical, psychological and social issues was observed. Analysis of linguistic aspects of videotaped interviews might become in the future a part of individualised feedback in CST and utilised as a marker for an evaluation of training.

Keywords Cancer · Clinician–patient communication · Communication skills training · Oncology · Linguistic strategies

Introduction

Over the last decade, there has been an increase of so called communication skills trainings (CSTs). CST is particularly relevant for oncology, where threatening and complex information is communicated and crucial decisions have to be made [1–4]. It has been observed (1) that ineffective communication increases patients' confusion [5] and clinicians' dissatisfaction [6] and (2) that oncology clinicians tend to adopt strategies, which result on a linguistic level in an excessive use of implicit formulations [7], medical jargon [8], evasive language [1, 7, 8] and a rigid interactional setting (e.g. directivity of questions) [9–11]. On the other hand, CST has been demonstrated to be effective with regard to physicians' and patients' outcomes, such as clinicians' skill improvement or patients' information recall, adherence to treatment and pain control [12].

Different approaches to evaluate CST have been utilised focusing on various aspects [12–17], including clinicians' defence mechanisms [15] or patient–clinician interactions [16]. As recently stated in a European consensus paper [17], research should continue to evaluate CST from different perspectives. This study complements traditional methods to evaluate CST by assessing clinicians' linguistic strategies by means of a software (Logiciel d'Analyse de la Communication Verbale (LaComm), www.lacomm.be) that analyses the linguistic content of medical communication, based on a similar type of procedure as the frequently used Roter interaction analysis system (RIAS), which is designed as a rating system by an observer. In contrast, LaComm provides a computational rating. It distinguishes between three main functions of an (oncology) consultation: assessing, supporting and informing the patient [18]. Each of these functions is based on specific communicational skills: (1) *assessment skills* used when clinicians invite patients to report their physical and psychosocial concerns, (2) *support skills* used when they empathically respond to patients' concerns and needs and (3) *information skills* used when they structure the interview and provide information about the disease and its treatments.

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Methods

The study—based on a two-group pre/post controlled trial—evaluated interviews of oncology clinicians who participated in a CST (CST group) and oncology clinicians who did not (control (CTRL) group). The interviews were first analysed with regard to clinicians' defence mechanisms, demonstrating that defences change under training with an increase of mature defences in the CST group for clinicians with a higher initial overall defensive functioning [15]. A second grant was obtained to analyse this material from a linguistic point of view.

Sample

The CST group, enrolled between 2000 and 2006, consisted of 57 French-speaking oncology physicians ($N=30$) and nurses ($N=27$) of whom 43 (75.4 %) were women and 14 (24.6 %) were men with a mean age of 37.9 years (SD=7.2). The CTRL group, enrolled between 2004 and 2006, consisted of 56 French-speaking oncology physicians ($N=21$) and nurses ($N=35$) of whom 35 (62.5 %) were women and 21 (37.5 %) were men with a mean age of 39.4 years (SD=9.3) (no significant differences between groups).

Intervention (CST)

The CST consisted of a 2-day course, followed by four to six individual supervisions and a half-day training 6 months later [19]. A maximum of ten oncology clinicians (physicians and nurses) participate in a given CST, which is based on video feedback of interviews with simulated patients, role play and interactive case presentations, focusing on four major aspects of communication: structure of the interview (time, space, participants, negotiation of the patient's and clinician's agenda, transitions to new topics, intermediate syntheses, etc.), exchange of information (different types of questions, adequacy of language, amount of information provided, etc.), emotions (verbal and non-verbal expressions of the patient's emotion, identification of emotional expression, empathic responses, etc.) and relational aspects (encouraging the patient to express his views and concerns, clarifying his needs, maintaining narrativity, etc.).

Each participant of the CST conducted two videotaped interviews of 15 min with a simulated patient (professional actors experienced in playing cancer patients), one before training and one 6 months later. Prior to the interviews, both the oncology clinicians and the actors received written instructions specifying the type of cancer (breast, stomach, testicles and lymphoma) and its treatment (curative or palliative) and the purpose of the interview (announcing the diagnosis of a curable cancer or proposition of palliative

treatment for physicians; preparing the patient for curative or palliative chemotherapy for nurses). Participants of the CTRL group also conducted two videotaped interviews of 15 min with a 6-month interval based on the same scenarios and with the same actors (simulated patients).

Assessment: Verbal Communication Analysis (LaComm)

LaComm is a content analysis software, developed by Razavi et al. [20] for the linguistic assessment of medical communication. LaComm is based on databases which are similar to those of softwares like Protan, LIWC or General Inquirer.

The software performs, in a single-stage process, a twofold analysis of clinicians' discourse and of patients' discourse. Discourse of clinicians is analysed (1) by identifying utterances reflecting different communication strategies, which are regarded as sets of statements produced in order to achieve a communication goal and (2) by classifying the words of these utterances, depending on their meaning, in categories of distinct topics. Given that no specific strategies are expected from the patients, their discourses are only classified in topic categories, which means that only words are taken into account.

Clinicians' utterances are classified in three categories of communication strategies corresponding to the above-mentioned functions of an oncology consultation: (1) assessment, (2) support and (3) information of the patient. Each of these categories is further divided into several subcategories (see Table 1). The assessment strategy category includes utterances which allow clinicians to obtain information about the patient's disease and his physical and psychosocial concerns (e.g. "did you begin the treatment?", subcategory "closed binary assessment"). The support strategy category includes utterances which allow clinicians to acknowledge patient's concerns, to reassure him and to take into account his opinions (e.g. "I understand", subcategory "basic hetero-centred acknowledgment"). The information strategy category includes utterances which allow clinicians to inform about the context of the consultation and the planned examination (e.g. "I am Doctor X", subcategory "context of the interview").

Words of clinicians and patients—related to specific topics—are classified into three topic categories: (a) medical topic, (b) psychological topic and (c) social topic. Each category is again further divided into several subcategories (see Table 1). The medical topic category includes words belonging to subcategories, such as "precise oncological diagnosis" (e.g. cancer, Hodgkin's), "imprecise oncological diagnosis" (e.g. anomaly, illness) or "treatments, techniques and similar words" (e.g. morphine,

Table 1 Examples of LaComm's categories

Communication strategies categories

Assessment

 [Subcategories]

 Open assessment

 Simple semi-open clarificatory assessment

 Semi-open clarificatory assessment without coreference

 Closed binary assessment

 Assessment of the communication

Support

 [Subcategories]

 Basic hetero-centred acknowledgment

 Emotional/non-emotional hetero-centred acknowledgment

 Emotional/non-emotional auto-centred acknowledgment

 Reinsurance

 Simple negotiation

 Assessing negotiation

Information

 [Subcategories]

 Interview setting

 Examination setting

Topic categories

Psychological topic

 [Subcategories]

 Anxiety

 Distress

 Anger

 Shame

 Positive emotions

 Secondary processes and (self) motivation

Medical topic

 [Subcategories]

 Precise oncological diagnosis

 Precise non-oncological diagnosis

 Precise oncological/non-oncological prognosis

 Imprecise oncological/non-oncological prognosis

 Treatments, techniques and similar words

Social topic

 [Subcategories]

 Relatives

 Work

 Leisure time

catheter). The psychological topic category includes words belonging to subcategories, such as "anxiety" (e.g. afraid, nervous) or "distress" (e.g. sad, helplessness). And the social topic category includes words relating to subcategories, such as "close relations" (e.g. family, wife), "work" (e.g. job, salary) or "leisure time" (e.g. activities, hobbies).

Data Analyses

Since some subcategories—for example words referring to clothes—were not considered to be relevant within the scope of the study and others were not used, only 44 of the 81 subcategories of LaComm (see www.lacomm.be) were included in the analysis. The results of each of these 44 subcategories were compared between CST and CTRL groups. ANOVA were performed with LaComm's subcategories as dependent variables. The variance analysis was computed by the statistical software SPSS 15.0 (for Windows). Cohen's d effect size measurements were computed for the ANOVA and the t tests. All tests were two-tailed and the alpha was set at .05

Results

LaComm's Mean Frequencies for the CST and the CTRL Group

For both the CST and the CTRL groups, the three most frequent subcategories of utterances and words (19 to 27 occurrences per interview) were treatments, techniques and similar words, basic hetero-centred acknowledgment and secondary processes and (self) motivation (see Table 2). The subcategory treatments, techniques and similar words includes words referring to medical equipment and treatments and/or medical procedures (e.g. names of medication). The subcategory basic hetero-centred acknowledgment includes utterances used to encourage the patient to express himself (e.g. "I understand you"). The subcategory secondary processes and (self) motivation includes words referring to cognitive processes (e.g. to decide) or to the personality (e.g. courage). Fourteen other subcategories had a mean frequency of 2 to 6 and 27 subcategories had only a mean frequency of 0.02 to 2 occurrences per interview and were therefore not included in the analysis.

Changes After CST

While no change between time 1 and time 2 was observed for the CST and the CTRL groups with regard to the utterances, statistically significant differences were observed with regard to the identified words (see Table 3). The differences occurred in all topic categories (medical, psychological and social). After CST, clinicians used more often words related to the following subcategories: in the medical topic category for the subcategory precise oncological diagnosis ($p=.049$); in the psychological topic category for the subcategory secondary processes and (self) motivation ($p=.011$) and in the social topic category for the subcategories

Table 2 LaComm's subcategories with the highest mean

	CST				CTRL			
	Pre		Post		T1		T2	
	M	SD	M	SD	M	SD	M	SD
Treatments, techniques and similar words	25.70	12.546	27.35	13.182	25.20	13.455	23.84	13.222
Basic hetero-centred acknowledgment	26.26	14.589	26.74	14.211	23.59	14.596	21.25	14.737
Secondary processes and (self) motivation*	19.86	7.340	23.86	9.156	21.91	10.342	19.46	10.441

CST group with the communication skills training (*N*=57), *CTRL* group without the communication skills training (*N*=56)

*p=.011

work (*p*=.048) and leisure time (*p*=.001). Group contrasts effect sizes were small to medium.

Discussion

Compared to the CTRL group, clinicians who benefited from CST showed no changes with regard to the analysis of utterances, but an increase of words in the categories indicating the medical, psychological and social topics. The fact that changes after CST are observable only on the level of words (or topics investigated) and not with regard to utterances (or strategies of communication) is not surprising. With other words, CST did not lead clinicians to change the dynamics of their interview, for example by changing the proportion of communication focusing on assessment, support and information provided. However, words investigating certain topics increased, illustrating that clinicians more often used precise diagnostic terms, such as "carcinoma" or "malignant" (subcategory "precise oncological diagnosis") and thus relatively fewer terms which are

vague, such as "nodules" or "cells". Whether these changes represent a positive development (accurate information of the patient) or not (use of jargon) remains unanswered. However, what is often observed is that participants use avoidance strategies before training and are then enabled by CST to name the medical problem by its name, since they feel more comfortable to speak about difficult issues. Depending on the patient's desire to be informed, the fact that a clinician feels secure to face threatening news seems to be beneficial; on the contrary, anxiety is often contagious and distressing, also between patients and clinicians.

This hypothesis that CST improved linguistic aspects of communication is also confirmed by an increase of words related to the subcategory secondary processes and self motivation, which represents the patient's experiences of the illness (e.g. "impressions" (of the patient)), as well as the subcategory of words indicating work (e.g. "profession") and leisure-related issues (e.g. "family"), thus giving room to the patient's subjectivity and fostering the therapeutic alliance.

While a linguistic analysis does not provide an evaluation of the quality of a given interview, it provides indicators of

Table 3 Changes between pre/post and T1/T2 in LaComm's subcategories for the CST and CTRL groups

	CST							CTRL						
	Pre		Post					T1		T2				
	M	SD	M	SD	F	p	d	M	SD	M	SD	F	p	d
Precise oncological diagnosis	2.49	3.790	4.49	6.577	3.957	.049	−0.37	3.75	5.428	3.18	4.605	0.361	.549	0.11
Secondary processes and (self) motivation	19.86	7.340	23.86	9.156	6.623	.011	−0.48	21.91	10.342	19.46	10.441	1.552	.216	0.23
Work	2.05	2.271	2.98	2.676	4.001	.048	−0.37	2.46	2.683	2.96	3.547	0.708	.402	−0.15
Leisure time	0.42	0.755	1.11	1.319	11.560	.001	−0.64	0.95	1.600	1.07	1.548	0.177	.675	−0.07

CST group with the communication skills training (*N*=57), *CTRL* group without the communication skills training (*N*=56) *p*≤.05, *F* between-group variance/within-group variance, *d* effect size measure

how balanced or unbalanced an interview may be from a linguistic point of view. Such markers might be useful for an individual feedback for participants of CST or for research. Up to now, methods evaluating the impact of CST were often based on observer-rated instruments, such as the RIAS. It would therefore be important to have linguistic markers which can be tailored to the objectives of a given CST and identified by a software analysis. LaComm is certainly still a quite complicated method, since interviews have to be transcribed first, but it may represent a first step towards new ways of efficiently analysing medical interviews. In the future, such analyses should be based on audio-analyses which do not depend on transcription of interviews.

Conflict of Interest   The authors declare that they have no conflict of interest.

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