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A CODING SYSTEM FOR DOCTOR-PATIENT COMMUNICATION IN ONCOLOGICAL CONSULTATIONS (ONCODE)

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The article describes an emic-oriented system for coding doctor-patient communication in oncological consultations (ONCode). The system aims to capture patient-centered communication practices, with particular attention to ethnically discordant interactions. ONCode is squarely focused on interactional aspects, assessed through seven dimensions. Video consultations with three oncologists and 19 patients (10 native Italians and nine non-native Italians) were coded with ONCode by two coders and with VR-CoDES by a different coder. Inter-rater reliability was tested by using ICC. Group differences (native vs. non-native) were assessed with linear mixed model analyses. This pilot study showed that the ONCode is fairly reliable, sensitive to patients' characteristics and contextual variables, and does not overlap with an established coding system such as the VR-CoDES. Moreover, the system enabled the identification of differences in communication in consultations with native and non-native patients.

Keywords: Doctor-patient communication; Oncology; Coding system; Intercultural communication; VR-CoDES.

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In cancer care, patient-centered communication has become a key feature due to its influence on patients' well-being, adjustment to diagnosis, better adherence to health recommendations, and higher quality of life (Bensing, 2000; Butow et al., 1996; Epstein & Street, 2007; Robinson et al., 2013; Venetis et al., 2009). The present paper describes the procedural and conceptual process for developing a system for coding doctor-patient communication in post-surgical oncological consultations. The system, named ONCode, aims to support systematic examinations of communicative behaviors in such life-saving settings and capture patient-centered communication practices with particular attention to those cases characterized by linguistic and cultural differences between the speakers. Given the increase in the number of foreign patients who make use of the national health institutions, the coding system is an opportunity to bring to light specific problems, raise awareness, and give specific suggestions for educational programs in medical communication, focusing on the presence of non-native patients.

In 2017 American Society of Clinical Oncology (ASCO), recognizing the complexity of communicating with patients, created a consensus guideline on patient-clinical communication (Gilligan et al., 2017). The guidelines considered the communication skills and the tasks that clinicians might use in adopt-

ing a patient-centered approach. At its core, patient-centered communication entails that the doctor solicits (and responds to) the patient's information-seeking behavior and expression of concerns, expressing empathy, and involving the patient in decision-making processes (Butow et al., 1996; Dowsett et al., 2000; Epstein & Street, 2007; Epstein et al., 2005; Katz et al., 2014). In the oncology domain, a growing body of research is contributing to our understanding of this topic, mainly focusing on the delivery of bad news (Baile et al., 2000; Beach & Good, 2004; Bousquet et al., 2015; Bumb et al., 2017; Butow et al., 1996; Shaw et al., 2012).

Research has primarily adopted non-observational measures (e.g., self-report questionnaires, satisfaction scales; cf. Elwyn et al., 2003) mainly related to the physician's ability to involve the patient in the communicative event. Other studies have developed coding systems applied to audio- or video-recorded interactions (Levinson et al., 2000; Stiles & Putnam, 1995), mainly evaluating doctor's behavior (e.g., giving information, reassuring, encouraging, etc.), considered as a global index of the doctor's communicative style (Mead & Bower, 2000; Roter & Larson, 2002). Other studies have developed coding systems for specific phases of the consultation (e.g., the decision-making phase; Brown et al., 2011), have focused on examining misunderstandings (McCabe & Healey, 2018; Rossi & Macagno, 2019) or emotional signals in the communication between doctor and patient during the consultation (see the Verona Coding Definitions of Emotional Sequences [VR-CoDES]; Del Piccolo et al., 2009).

Several of these coding systems are built "a priori," deriving their categories from theoretical, normative models that are distant from oncologists' everyday communication practices. Adopting an emic view, conversation analysis (CA) focuses instead on how participants in a conversation understand and respond to one another.

The conversation analytic perspective has provided considerable evidence regarding the communication practices used by doctor and patients to co-construct the different phases of the medical examination (Collins et al., 2005; Heritage & Sefi, 1992; Hudak et al., 2011; Stivers & Sidnell, 2005, Stivers & Robinson, 2006; Stivers et al., 2003). If, traditionally, CA favored qualitative, micro-analytical, and sequential examination of communication practices (Schegloff, 2007), some studies recently focused on the development of coding systems which do not sacrifice sensibility to the emic meaning of social actions (cf. McCabe & Healey, 2018; Stivers & Barnes, 2018; Thompson & McCabe, 2018). As Stivers (2015) pointed out, coding systems applied to videotaped and transcribed interactions have the advantage of supporting quantitative data analysis, making correlations between interactional and non-interactional variables (such as socio-demographic or other variables, e.g., preferences, beliefs, or treatment outcomes), and addressing a broader audience.

As research interest for intercultural communication in healthcare settings has increased, a growing body of evidence has shown that patients' ethnic, linguistic, and cultural identity in medical encounters can influence various communicative practices (Bischoff & Wanner, 2008; van Wieringen et al., 2002). Research on making communication with foreign patients effective is considered central by scientific medical associations such as ASCO and Italian Association of Medical Oncology (AIOM). Epidemiologic studies showed that immigrant groups also face discriminating social contexts, which affect their health (Acevedo-Garcia & Almeida, 2012). Reviews of observational studies (Jacobs et al., 2003; Schouten & Meeuwesen, 2006) observed relevant difficulties in communication between doctors and patients coming from different cultural and ethnic contexts, such as a higher emotional detachment by the doctors; a lower degree of verbal expressivity and determinacy by foreign patients as compared to natives. Other studies have revealed that the patient's ethnic identity (as well as the doctor's) affected the expectation of mutual comprehension, with consequential effects upon the degree of perceived effectiveness of the communica-

tion (Bischoff & Wanner, 2008; van Wieringen et al., 2002). Furthermore, foreign patients appear to have lower adherence to prescribed medications and treatment. This result suggests that there may be a relationship between the patient's compliance and difficulties in understanding the doctor's instructions, or to access conversational strategies such as requests for explanation and reformulation (Bischoff & Wanner, 2008). Communicative difficulties can explain the failure of therapeutic paths and protective measures of foreign patients' health, such as the maladaptive consequences of pregnancies, which are documented by national and international statistics and by related epidemiologic studies (Bollini et al., 2009). Other comparative results (foreign vs. native patients) derive from studies done in interpreter-mediated oncological contexts (Butow, Bell et al., 2011). It has been found that the doctor spends less time in activities such as explanation and summary of the information, behaves in a more directive way and tends to delay responses to requests to understand by patients accompanied by an interpreter as compared to native patients (cf. also Baraldi & Gavioli, 2007; Gavioli & Baraldi, 2011).

Some research demonstrated disparities in patients' quality of care in racially discordant interactions (e.g., Dovidio et al., 2016; Penner et al., 2012). These inequalities are well documented, especially in oncological diseases (DeSantis et al., 2014; Tehranifar et al., 2009). Furthermore, these disparities, particularly when they affect the doctor-patient communication, can be associated with negative outcomes for the patient, such as lower treatment satisfaction, lower trust in the doctor, and lower adherence to the doctor's recommendations.

Other studies, using external measures such as patient-centeredness or patient's ratings of physicians' participatory decision-making styles (or also, measures of overall patient's satisfaction), have shown that communication with foreign patients is shorter, less centered upon the patient, and less characterized by positive emotions. Moreover, they involve less participation on the part of the patient to the decision-making process, and less time spent giving information and more verbal dominance by the doctor (Johnson, Roter et al., 2004; Johnson, Saha et al., 2004; Oliver et al., 2001). A study conducted using audio recording of medical consultations of Afro-American patients (Johnson, Roter et al., 2004) confirmed that the ethnic difference shaped the communicative process, influencing the doctor's physical orientation toward the conversation affective tone (which was minor with Afro-American patients). Both factors have been long known to reduce the degree of patient's involvement in decisions related to her/his health (Cooper-Patrick et al., 1999).

The Development of the Coding System

Previous research from our group inspired the present study. Drawing on the analyses of video-recorded oncological consultations held in Italian hospitals between 2012 and 2020, these studies were influential in two ways. First, they provided naturally-occurring doctor-patient conversations to identify the communication practices through which recommendations are made and responded to (Alby, Fatigante, & Zucchermaglio, 2017; Fatigante et al., 2020), diagnoses are formulated (Fatigante et al., 2016), history taking is accomplished (Zucchermaglio et al., 2016), clinical records are written (Sterponi et al., 2017), misunderstandings and uncertainty are managed (Alby, Zucchermaglio, & Fatigante, 2017). Second, they provided an empirical ground for understanding how patient-centered communication unfolds within the cultural, organizational, and medical constraints of oncological consultations in Italy (Alby et al., 2015; Fantasia et al., 2021; Sterponi et al., 2021; Zucchermaglio & Alby, 2016). Prior work (Fatigante et al., 2016, 2021; Sterponi et al., 2019) also documented the overall structural organization of first post-surgical

consultations, which routinely include a sequence of stages and activities (Table 1). The coding scheme exploits the connection between communicative behaviors and stages of the consultation by coding the interaction per phase for most of the dimensions. Based on these premises, the present study aims to develop a new emic-oriented coding system (referred to as ONCode) to capture doctor-patient communication in post-surgical oncological consultations and relevant patient-centered communicative behaviors with native and non-native patients. After describing the coding system to ensure its replicability and applicability, we tested its reliability, comparing the inter-rater agreement of two independent coders, trained in the use of the coding grid, to effectively identify the markers and attribute them to the same coding options. In particular, we hypothesize that the coder does not influence the scoring of the system. Regarding the validity of the procedure, we pilot the hypothesis that the ONCode is sensitive to differences in communication in oncological consultations with native and non-native patients; moreover, we explore the overlap between the ONCode scoring categories and those obtained applying the Verona Coding Definitions of Emotional Sequences (VR-CoDES).

TABLE 1
Stages of first post-surgical oncological consultations

Stage	Definition
Opening	This includes the sequence of greetings and identification of the patient (such as the request and registration of the patient's name and address). It is routinely accompanied by the creation of the patient's record and the doctor's writing of the patient's name and other identification references in it (e.g., address, telephone number). It also includes the question about what kind of cancer the patient has, if this is not preliminarily known by the doctor.
Anamnesis	This includes the oncologist's activity of questioning regarding the patient's clinical history (including present and past illnesses, surgical interventions, current pharmacological treatments, etc.), beyond the recent cancer diagnosis. This is relevant for the oncologist's assessment of cancer co-morbidities, useful to plan a treatment recommendation that has no harmful consequences for that particular patient.
Cancer presentation	This stage includes the history taking and the patient's narrative regarding her/his current cancer problem: when it was discovered, how, when the patient underwent surgery, and so on. It is rather brief in Setting 1, whereas it can take longer and be elicited as a full narrative in Setting 2.
Cancer diagnostic assessment	It includes the examination of tests that the oncologist has to read to get information about the cancer type and diagnosis (also known as "staging" of the cancer) and explanations to the patient.
Treatment recommendation	It comprises the presentation, explanation, and discussion of the treatment options. It also includes reference to side effects and prognostic assessment. Indication for further examinations or referrals to specialists may be included here, if they were deemed necessary for further diagnostic investigation.
Outline of future actions	It comprises the oncologist's verbal recommendation and written prescriptions of the following appointments, examinations, and negotiation of future actions, which may also include the interaction with other health operators such as radiotherapists, or the head nurse.
Closing	It includes sequences in which participants show their orientation to closing the official business of the consultation, such as removing documents from the table and putting them away, acknowledgments, taking leave sequences.

METHODS

Participants

Because this is a pilot study carried out on a limited number of video recordings, no inclusion/exclusion criteria were applied to select patients. In this paper, we coded a total of 19 consultations, carried out in two Italian hospitals. Ten patients were native Italians, while nine were non-native Italians. All native patients were having their first consultation with the same oncologist in the same hospital. We aimed to study patients at the first meeting with the oncologist after being diagnosed and having undergone surgery for cancer. The main objective of a first consultation is an in-depth diagnostic assessment of the tumor and the proposal of a treatment plan, possibly involving a choice between one or more treatment options. Among the non-native patients, there were five first consultations and four follow-up consultations. During a follow-up visit, the doctor evaluates the course of the treatment and, if necessary, adapts the patient's treatment regime according to diagnostic tests, blood tests, and clinical evaluations. The patients were recruited at both hospitals, and three oncologists examined the patients. Among native Italian patients, seven females had a breast cancer diagnosis, two males urinary tract tumors, and one female colon cancer. All non-native Italians were females with a breast cancer diagnosis. The age range varied between groups: native Italian patients were older (*M*age = 64.40; *SD* = 7.14) than non-native patients (*M*age = 43.11; *SD* = 10.17). Among native Italians, eight patients out of 10 were accompanied by a close relative or friend; five non-native Italian patients out of nine attended the consultation alone. All data were collected following the relevant human subjects board approvals, and all participants provided informed written consent. The video recordings were fully transcribed according to conversation analytic conventions (Jefferson, 2004). Names and other identifiers were kept anonymous.

CODING TOOLS

ONCode

This coding scheme focuses on interactional aspects, together with a range of non-interactional variables. The identification of the communicative dimensions was grounded in emic notions of patient-centered practices together with evidence and definitions provided by the literature. In particular, doctor's communicative practices — such as giving information, making her/himself accountable to the patient, involving patients in the decision-making process, supporting patients' self-management and initiative, managing uncertainty and emotions — are considered in the literature core functions of patient-centered communication (Epstein & Street, 2007; Robinson et al., 2008; Street et al., 2009; Venetis et al., 2009). They are linked to proximal outcomes such as patients' trust in the physician, understanding, motivation, and are proven to affect intermediate outcomes such as access to care, self-care skills, or commitment to treatment, which, in turn, affect emotional well-being, vitality, and health (Street et al., 2009). The patient's active role in medical encounters is also associated with increased patient's physical and psychological well-being; engaged patients are more satisfied with the medical encounter and have a stronger sense of control over their health and therapy (Greenfield et al., 1985; Kaplan et al., 1989; Siminoff et al., 2000; Street & Millay, 2001). Misunderstandings in doctor-patient communication are also known to play a role in potential or actual adverse consequences of taking medication (Britten et al., 2000), in treatment adherence (McCabe & Healey, 2018), and in increasing the burden of disease in minority ethnic groups (Kagawa-

Singer & Kassim-Lakha, 2003). Because, according to Sacks, Schegloff, and Jefferson (1974), an ideal conversation is organized so that no interruption occurs, we also took into account interruptions in the visit (e.g., phone calls) as something that could impact the orderliness of the encounter and the flow of the activities.
The coding system assessed patient-centered communication using the following dimensions.

1) Doctor's communicative behavior. We coded how the doctor accomplishes the activities at each stage of the consultation, that is, for instance, how s/he recommends a treatment, prescribes the following examinations, delivers the diagnosis, and so forth. We relied on linguistic actions such as questions, metapragmatic formulations, explanations, recommendations. Relevant Doctor's communicative behaviors differ at each stage of the consultation, for example, greetings and small talk are relevant at the opening of the consultation. At the same time, questions on the patient's possible illnesses are relevant in the anamnesis stage (cf. Appendix A for the descriptions of all the empirical markers of the coding dimensions at each stage of the consultation).

2) Patient's initiatives. We examined whether patients take initiatives such as asking questions, expressing concerns, proposing a topic, or merely aligning with what the doctor says or asks. We also considered the initiatives of the patient's companion, if present.

3) Misalignments between doctor and patient. We coded misalignment episodes, in which a fracture in the co-orientation of participants toward the same activity, or in the understanding of the topic, occurred. What is evaluated is whether — and with what effort — the participants repair the fracture and find agreement or, instead, remain on distant positions.

4) Interruptions in the visits. We checked for interruptions at each stage of the consultation. Interruptions include phone calls, the doctor leaving the room, exchanges with the nurse, or other doctors entering the room. We considered interruptions all the moments in which the consultation was suspended because of matters that did not concern the current consultation (and patient). Interruptions due to systematic organizational routines (e.g., the doctor goes out to photocopy the exams) were not counted.

5) Accountability and expressions of trust in participants' talk. Drawing on studies on patients' preferences (cf. Charles et al., 1997; Kukla, 2005; Say et al., 2006), we considered the doctor's activity of giving information and explaining to be central to building a trusting relationship. In particular, we examined how the doctor makes her/himself accountable to the patient by providing access to her/his medical knowledge and reasoning. Examples are: explaining the rationale used for recommending treatment, providing alternative options for treatment, providing metapragmatic markers that help the patient to orient her/himself within the consultation activities (such as "Now I am going to read the exams, then I'll explain everything to you"). We also assessed if the patient topicalizes confidence in the doctor by using expressions such as "If the doctor says so, I will do it" or "You are the doctor, and I trust what you say."

6) Markers of uncertainty in doctor's talk. We coded mentions of uncertainty in the doctor's talk, that is, when the doctor displays uncertainty about the treatment outcomes, for example, by using modalized or evidentialized moods, reference to probability, minor benefits, uncertainty of outcomes (such as "The recommendation for treatment is not absolute in my opinion, yet I tend to prescribe it").

7) Markers of emotions in doctor's talk. We coded whether in the doctor's talk there are sequences of reassurance (e.g., the doctor highlights positive sides of the situation), if there are jokes or humor, if the doctor responds to emotional concerns expressed by the patient, if the doctor touches the patient as a gesture of support (such as touching hands, pat on the cheek).

As non-interactional variables, we coded: (i) patient nationality, gender, age, site of tumor; (ii) hospital and physician; (iii) presence of an accompanying person; (iv) type of visit (whether it is a first-time encounter or a follow up). Coding options for each dimension and examples are presented in the Appendix A.

Verona Coding Definitions of Emotional Sequences

We coded the patient's emotional cues and concerns during the consultations and the oncologist's responses using the VR-CoDES (Del Piccolo et al., 2011; Zimmerman et al., 2011). In this framework, a cue is a verbal or non-verbal hint indicating an underlying unpleasant emotion lacking clarity. A concern is an unambiguous expression of an unpleasant current or recent emotion that was explicitly verbalized (see Zimmerman et al., 2011 for a detailed description). Health provider's (HP) responses can be categorized into explicit (that is, referring explicitly to the cue/concern) and implicit (alluding but not making nominal reference to the cue/emotion or concern) types. A health provider's response can also be aimed to reduce or provide a space for elaborating the cue/concern. In the present study, we scored all cues and concern responses in a single index to summarize the overall expression of emotional distress during the consultation. On the health provider's side, we maintained the distinction between reducing and providing space for elaboration, collapsing explicit and implicit responses.

Coding Procedures

The VR-CoDES was applied to consultations by a single experienced coder (blinded to ONCode results) who followed the standard manualized scoring rules. The ONCode was applied by two independent coders, who were purposefully trained. The coders were an advanced social psychology graduate student and a research fellow. Before rating the consultations included in the current study, the two coders underwent supervised training in the use of the manual (which includes a grid and examples, see Appendix A) and rated five video recordings of consultations (not used in the present study). Disagreements during practice were discussed with the supervisor to attune the ratings. Coding consensus was achieved by focusing on the definitions and examples in the manual. After training, the two coders proceeded to rate the consultations separately and independently, and their agreement was used to measure the reliability of the ONCode.

Statistical Analysis

Reliability

The inter-rater reliability of the ONCode was assessed by computing intraclass-correlation coefficients (ICC) based on ANOVA variance components. According to Shrout and Fleiss (1979) convention, the six available types of ICC computation methods can be referred to as two numbers in parentheses. The first number refers to the ANOVA model used to estimate the variance component (e.g., 2 = two-way random effects), and the second number refers to whether the estimates are for a single coder (1) or the mean of two coders (2). Because we used the mean value of the two coders as an assessment basis for the present study, we assessed the reliability using ICC (2,2), which is derived from a two-way mixed effect model, with two coders. However, given that future research might rely on a single coder, we also reported ICC (2,1). In both cases, the ICC reflects the inter-coder agreement as consistency across coders. According to Fleiss et al. (2003), ICCs greater than or equal to 0.75, between 0.75 and 0.40, and below 0.40 are considered excellent, moderate, and weak, respectively.

Mixed Model Analysis

To evaluate group differences (native vs. non-native) the ONCode scores were submitted to linear mixed model analyses. The coder (coder 1 vs. coder 2) and Coder × Group interaction were controlled for as repeated factors. The data were clustered by consultation and a random intercept was set to account for the correlation and variance of ONCode scores within each consultation. Analyses were performed using the "lme4" R package (Bates et al., 2015) and the models were fitted using restricted maximum likelihood (REML). *P*-values were obtained using the Satterthwaite approximation (Gaylor, 2006). Statistical significance was set at $p < .10$ and all tests were two-tailed.

RESULTS

Reliability

Based on 19 consultations rated by the same two judges, we examined the interrater reliability of the ONCode system using a two-way random-effect model intraclass correlation coefficient and the Spearman-Brown correction for the two-way random-effect model ICC representing the mean reliability across two coders. As shown in Table 2, except for accountability and expressions of trust, and markers of uncertainty in doctor's talk, all ONCode categories were above the excellent standard for the single coder consistency index. Considering the mean reliability across two coders, it was excellent for all categories and for accountability and expressions of trust.

TABLE 2
Inter-rater reliability and descriptive statistics for the ONCode system categories

	ICC		Total sample		Native patients		Non-native patients	
Categories	(2,1)	(2,2)	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Doctor's communicative behavior	.95	.98	9.97	2.07	11.15	1.80	8.67	1.54
2. Patient's initiatives	.89	.94	4.76	1.24	5.55	0.80	3.89	1.05
3. Misalignments between doctor and patient	.81	.90	3.00	2.11	3.85	2.43	2.06	1.24
4. Interruptions in the visits	.84	.91	1.32	0.56	1.35	0.67	1.28	0.44
5. Accountability and expressions of trust	.54	.70	2.45	0.60	2.70	0.42	2.17	0.66
6. Markers of uncertainty in doctor's talk	.71	.83	0.61	0.46	0.80	0.42	0.39	0.42
7. Markers of emotions in doctor's talk	.79	.88	1.29	0.73	1.05	0.72	1.56	0.68

Note. Categories are abbreviated in the table because of formatting requirements; see Appendix A for complete descriptions. ICC (2, 1) = intraclass correlation coefficient two-way random-effects model; ICC (2, 2) = intraclass correlation coefficient Spearman-Brown correction for the two-way random-effects model; *N* for total sample = 19; *N* for native patients = 10; *N* for non-native patients = 9. According to Fleiss et al. (2003), ICC values in the range .60-.74 are good, and values ≥ .75 are excellent.

Descriptive Statistics

Table 2 also reports the descriptive statistics for the mean ratings assessed for the total sample and subgroups of native and non-native patients. The ONCode categories ranged from 0.80 to 11.15 in the native patient group, while the score range varied from 0.39 to 8.67 in non-native patients. The native group

obtained higher scores in all categories except for the markers of emotions in doctor's talk. The subsequent analyses aimed to test the statistical significance of these differences.

Differences between Native and Non-Native Patients

Table 3 reports the omnibus test of group (native vs. non-native) controlling for coder (Coder 1 vs. Coder 2) and Coder × Group interaction. The observations were clustered by consultation. Native and non-native patients were different in doctor's communicative behavior, patient's initiatives, misalignments between doctor and patient, accountability and expressions of trust, and markers of uncertainty in doctor's talk. In all cases, the native group obtained higher scores than the non-native group (see Figure 1). The coder and the Coder × Group interaction effects were never significant, except for a tendency toward significance ($p > 0.010$) for coder in the analyses of doctor's communicative behavior and markers of uncertainty. In particular, coders partly disagreed in the evaluation of these categories in the non-native patient group.

Because the non-native group included both first-time consultations and follow-ups, we re-analyzed the data controlling for the effect that the consultation structure might have on the ONCode scores. Being a first-timer patient was added to the analysis as a covariate. The adjusted estimates of group, coder, and their interaction is reported in Table 3.

TABLE 3
Statistical tests of mean differences between native and non-native patients controlling for type of visit and presence of an accompanying person

	Dependent: Doctor's communicative behavior								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	**–2.48**	**–3.22**	**.005**	**–1.65**	**–1.90**	**.076**	**–2.38**	**–2.79**	**.013**
Coder	0.26	1.69	.109	0.26	1.69	.109	0.26	1.69	.109
Group × Coder	–0.08	–0.25	.804	–0.08	–0.25	.804	–0.08	–0.25	.804
	Dependent: Patient's initiatives								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	**–1.66**	**–3.90**	**.001**	**–1.05**	**–2.38**	**.030**	**–1.70**	**–3.61**	**.002**
Coder	0.16	1.14	.271	0.16	1.14	.271	0.16	1.14	.271
Group × Coder	0.12	0.43	.671	0.12	0.43	.671	0.12	0.43	.671
	Dependent: Misalignments between doctor and patient								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	**–1.79**	**–1.99**	**.063**	–1.45	–1.32	.204	**–2.08**	**–2.12**	**.050**
Coder	0.13	0.42	.682	0.13	0.42	.682	0.13	0.42	.682
Group × Coder	0.86	1.39	.181	0.86	1.39	.181	0.86	1.39	.181
	Dependent: Interruptions in the visits								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	*Estimate*	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	–0.07	–0.27	.787	0.15	0.49	.632	–0.11	–0.38	.709
Coder	0.01	0.07	.941	0.01	0.07	.941	0.01	0.07	.941
Group × Coder	0.21	1.42	.175	0.21	1.42	.175	0.21	1.42	.175

(Table 3 continues)

Table 3 (continued)

	Dependent: Accountability and expressions of trust								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	**–0.53**	**–2.12**	**.049**	**–0.60**	**–1.95**	**.069**	**–0.56**	**–2.00**	**.062**
Coder	0.27	1.74	.101	0.27	1.74	.101	0.27	1.74	.101
Group × Coder	0.13	0.43	.670	0.13	0.43	.670	0.13	0.43	.670
	Dependent: Markers of uncertainty in doctor's talk								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	**–0.41**	**–2.13**	**.048**	–0.40	–1.69	.110	–0.36	–1.71	.107
Coder	0.17	2.12	.049	0.17	2.12	.049	0.17	2.12	.049
Group × Coder	0.33	2.12	.049	0.33	2.12	.049	0.33	2.12	.049
	Dependent: Markers of emotions in doctor's talk								
	Unadjusted			Adjusted for visit			Adjusted for companion		
Factor	Estimate	*t*	*p*	Estimate	*t*	*p*	Estimate	*t*	*p*
Group (native = 0)	0.51	1.56	.137	0.45	1.13	.274	0.49	1.38	.188
Coder	–0.15	–1.33	.201	–0.15	–1.33	.201	–0.15	–1.33	.201
Group × Coder	0.30	1.33	.201	0.30	1.33	.201	0.30	1.33	.201

Note. Values in bold indicate significant difference.

The new analysis confirmed the group differences in doctor's communicative behavior, patient's initiatives, and accountability and expressions of trust, while group differences in markers of uncertainty in doctor's talk and misalignments between doctor and patient were no longer significant. Likewise, we controlled for whether the patient was accompanied by a close relative or friend, or not. The analysis confirmed the group differences in doctor's communicative behavior, patient's initiatives, misalignments between doctor and patient, accountability and trust expressions. The only notable difference between analyses was about the markers of uncertainty in doctor's talk, which were no longer significant when controlling for a companion's presence during the consultation. The adjusted means showed that the markers of uncertainty increased in the non-native group when the patient was accompanied, while they slightly decreased in the native group when the patient was accompanied.

Overlap with the Verona Coding Definitions of Emotional Sequences (VR-CoDES)

In developing a new instrument (like our ONCode), it is important to test whether the scores obtained using its categories overlap with those obtained using an already established coding system – in this case the VR-CoDES. Using a linear mixed model analysis, we evaluated the extent to which the three main indices of the VR-CoDES were able to predict the ONCode category scores and the total degree of overlapping. Specifically, the indices used as predictors were: cues/concerns (patient's emotional expressions), health provider (HP) provides (physician accommodating those expressions), HP reduces (physician shutting down patient's emotional speech). The analyses were repeated, controlling for the group (native vs. non-native patients), type of visit (first visit or follow-up), and presence of an accompanying person.

As shown in Table 4, four ONCode categories (i.e., doctor's communicative behavior, patient's initiatives, interruptions in the visits, and accountability and expressions of trust) were unrelated to VR-CoDES indices, with R^2 values ranging from 3% to 5%. The patient's emotional expressions (cues/concerns) were associated with more misalignments between doctor and patient and greater markers

of uncertainty in doctor's talk. Conversely, physician behaviors, both accommodating emotional expressions and shutting down patient's emotional speech, were related to less misalignments and markers of uncertainty. These findings were overall robust to potentially confounding factors, like being a non-native patient, at the first consultation, or accompanied by a close friend or relative. An opposite pattern of results linked markers of emotions in doctor's talk to less emotional expressions and more behaviors aimed to embrace emotional expressions and shut down patients' emotional speech. However, these relationships were no longer significant when controlling for the ethnic group compositions. The largest overlap between VR-CoDES was R^2 = .55 with ONCode misalignments between doctor and patient.

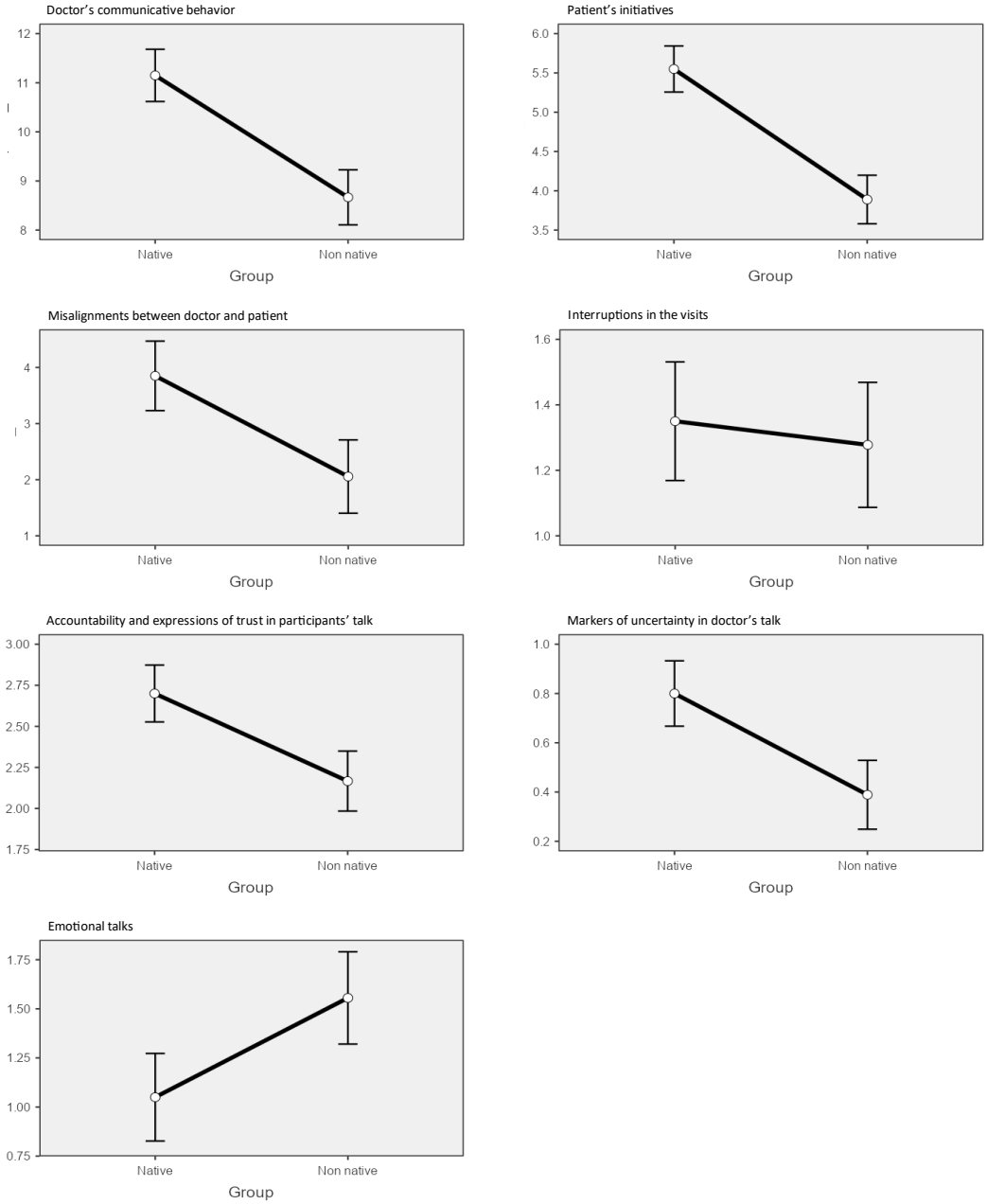

FIGURE 1
Mean differences between native and non-native patients in the ONCode categories.

TABLE 4
Statistical tests of predictive relationships between VR-CoDES and ONCode categories, unadjusted and adjusted for patient group, type of visit, and presence of an accompanying person (comp.)

	Dependent: Doctor's communicative behavior											
	Unadjusted (R^2 = .04)			Adjusted for group (R^2 = .33)			Adjusted for visit (R^2 = .34)			Adjusted for comp. (R^2 = .09)		
Predictors	*B*	*T*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	0.72	0.69	.498	0.22	0.25	.808	0.72	0.86	.406	0.71	0.69	.504
HP provides	–0.90	–0.76	.459	–0.26	–0.26	.797	–0.60	–0.62	.544	–0.86	–0.73	.479
HP reduces	–0.74	–0.68	.504	–0.30	–0.33	.744	–0.85	–0.98	.346	–0.72	–0.67	.511
	Dependent: Patient's initiatives											
	Unadjusted (R^2 = .05)			Adjusted for group (R^2 = .39)			Adjusted for visit (R^2 = .50)			Adjusted for comp. (R^2 = .08)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	0.49	0.79	.443	0.16	0.33	.746	-0.04	-0.65	.526	0.48	0.77	.453
HP provides	-0.59	–0.84	.412	–0.18	–0.32	.750	0.06	0.99	.341	–0.57	–0.81	.433
HP reduces	–0.43	–0.67	.514	–0.14	–0.29	.779	0.05	0.80	.435	–0.42	–0.65	.526
	Dependent: Misalignments between doctor and patient											
	Unadjusted (R^2 = .55)			Adjusted for group (R^2 = .60)			Adjusted for visit (R^2 = .67)			Adjusted for comp. (R^2 = .55)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	**1.91**	**2.95**	**.010**	**1.68**	**2.75**	**.016**	**1.91**	**3.62**	**.003**	**1.91**	**2.86**	**.013**
HP provides	**–2.22**	**–3.03**	**.009**	**–1.93**	**–2.78**	**.015**	**–2.04**	**–3.39**	**.004**	**–2.21**	**–2.92**	**.011**
HP reduces	**–1.50**	**–2.24**	**.040**	**–1.30**	**–2.07**	**.057**	**–1.56**	**–2.88**	**.012**	**–1.49**	**–2.17**	**.048**
	Dependent: Interruptions in the visits											
	Unadjusted (R^2 = .03)			Adjusted for group (R^2 = .03)			Adjusted for visit (R^2 = .09)			Adjusted for comp. R^2 = .10)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	0.22	0.76	.458	0.21	0.70	.496	0.22	0.78	.451	0.22	0.74	.471
HP provides	–0.24	–0.76	.457	–0.24	–0.69	.499	–0.20	–0.64	.532	–0.25	–0.75	.468
HP reduces	–0.22	–0.75	.463	–0.21	–0.70	.497	–0.23	–0.82	.425	–0.22	–0.73	.476
	Dependent: Accountability and expressions of trust											
	Unadjusted (R^2 = .05)			Adjusted for group (R^2 = .19)			Adjusted for visit (R^2 = .08)			Adjusted for comp. (R^2 = .08)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	–0.12	–0.41	.690	–0.24	–0.86	.403	–0.12	–0.41	.691	–0.12	–0.40	.692
HP provides	0.15	0.44	.664	0.29	0.94	.362	0.18	0.53	.603	0.16	0.45	.657
HP reduces	0.16	0.51	.614	0.26	0.92	.375	0.15	0.47	.644	0.16	0.51	.617
	Dependent: Markers of uncertainty in doctor's talk											
	Unadjusted (R^2 = .22)			Adjusted for group (R^2 = .36)			Adjusted for visit (R^2 = .27)			Adjusted for comp. (R^2 = .27)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	**0.40**	**2.05**	**.059**	**0.32**	**1.81**	**.093**	**0.40**	**2.09**	**.055**	**0.40**	**2.07**	**.057**
HP provides	**–0.44**	**–1.96**	**.068**	–0.34	–1.66	.119	**–0.41**	**–1.86**	**.084**	**–0.43**	**–1.96**	**.070**
HP reduces	**–0.45**	**–2.23**	**.042**	**–0.38**	**–2.09**	**.056**	**–0.46**	**–2.33**	**.035**	**–0.45**	**–2.26**	**.041**
	Dependent: Markers of emotions in doctor's talk											
	Unadjusted (R^2 = .21)			Adjusted for group (R^2 = .27)			Adjusted for visit (R^2 = .22)			Adjusted for comp. (R^2 = .21)		
Predictors	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*	*B*	*t*	*p*
Cues/concerns	**–0.60**	**–1.86**	**.083**	–0.51	–1.60	.133	**–0.60**	**–1.83**	**.088**	**–0.60**	**–1.80**	**.093**
HP provides	**0.73**	**2.00**	**.064**	0.62	1.70	.111	**0.70**	**1.88**	**.081**	**0.73**	**1.93**	**.074**
HP reduces	**0.63**	**1.89**	**.078**	0.55	1.69	.114	**0.64**	**1.90**	**.078**	**0.63**	**1.83**	**.088**

Note. Values in bold indicate significant difference.

Discussion and Conclusions

The present study aimed to present preliminary evidence for the ONCode, a new emic-oriented coding system for examining doctor-patient communication in oncology.

Based on the pilot study data, we showed that the ONCode is reasonably reliable, sensitive to patients' characteristics and contextual variables, and does not overlap with an established coding system. Regarding reliability analyses, we showed that, using trained coders, the agreement in coding was overall satisfactory, thereby supporting the applicability and potential utility of the proposed categories to analyze communication in oncological consultations. In particular, doctor's communicative behavior, patient's initiatives, misalignments, interruptions in the visits, and markers of emotions in doctor's talk showed excellent agreement (Fleiss et al., 2003). Markers of uncertainty in doctor's talk and accountability and expressions of trust in participants' talk displayed a fair agreement.

Our results showed consistent estimates of reliability using ICC (2,1) and ICC (2,2). Because ICC (2,1) assesses the reliability that one can expect using a single coder, the study suggests that ONCode can be reliably used in future research with a single coder (as it is routinely done in applied research with oncological patients).

An important design variable was patients' ethnic background. Previous research underscored the need to ensure high-quality communication in doctor-patient relationships, especially when native oncologists examine foreign patients in the host country health institutions (Butow, Sze et al., 2011; DeSantis et al., 2014; Tehranifar et al., 2009). In our study, the ONCode enabled identifying differences in communication in consultations with native and non-native patients. The native group obtained higher scores in all categories except for the markers of emotions in doctor's talk. Differences were statistically significant for doctor's communicative behavior, patient's initiatives, misalignments between doctor and patient, accountability and expressions of trust, and markers of uncertainty in doctor's talk. Such differences indicated that the doctor used a more eloquent and articulate communication in the consultations with native patients, displaying more linguistic actions such as asking questions, giving explanations, providing reasons for recommended and alternative treatments, engaging in small talk (doctor's communicative behavior). Native patients showed more initiative, such as asking questions, expressing concerns, proposing a topic (patient's initiatives). With native patients, the misalignments between patient and doctor were more frequent and marked, which can be interpreted in the light of a greater initiative on the part of these patients than the non-native ones (misalignments between doctor and patient). However, this latter effect was no longer significant if controlled for type of visit, a finding that might suggest that this dimension should be checked again with a broader and more homogeneous corpus of consultations. In consultations with native patients, the doctor makes her/himself more accountable while the patient topicalizes confidence in the doctor more often than in the consultations with non-natives (accountability and expressions of trust). The doctor displayed more uncertainty in her/his talk with native patients than with non-native ones (markers of uncertainty in doctor's talk). This dimension is influenced by the presence of a companion, which may suggest that the companion plays a role in supporting the patient in understanding uncertain scenarios involving, for instance, a reference to probability or assessing risks and benefits; the effect is no longer significant when controlling for the presence of a companion. Moreover, this dimension is also influenced by the type of visit: uncertainty of outcomes is less likely to be relevant in follow-up consultations, when a treatment plan is already underway. This dimension should also be checked again with a wider and more homogeneous corpus of consultations. Interruptions (e.g., phone calls, nurses entering the room) were no different in consultations with native or non-native patients. The dimension markers of emotions in doctor's talk shows an interesting, though not currently significant, trend: the doctor relies more on emotional talk (e.g., reas-

suring, touching) with non-native patients than with native ones. This trend should be further verified using a larger sample.

The VR-CoDES is one of the most widely used systems for coding doctor-patient interaction. It was thus logical to compare the ONCode to VR-CoDES variables. A strength of our comparison is that we used an independent coder for the Verona coding to reduce the risk of bias assessment.

Five of the ONCode categories were only marginally covered in VR-CoDES. This finding may have implicationsfor using both systems to have a more comprehensive doctor-patient communication assessment. One of the ONCode categories (misalignments between doctor and patient) was moderately associated with VR-CoDES. It is worth noting that misalignments in the ONCode represent a fracture in the co-orientation of participants toward the same activity or understanding the topic. Misalignment between doctor and patient describes negotiation activities (clarifications, reformulations) of both participants. When misunderstandings arise, participants can repair them and re-align (low score) or somewhat distance themselves from each other and remain in disagreement (high score). The misalignment score was associated with an increased formulation of cues/concerns by the patient and fewer doctor's responses to these solicitations in the VR-CoDES.

Markers of uncertainty in doctor's talk showed the same pattern but to a lesser extent. Many markers of uncertainty in the doctor's talk go together with greater emotional expressions (cues/concerns) by the patient and fewer actions by the doctor in the VR-CoDES (both providing and reducing opportunities for emotional elaboration). Uncertain clinical data seem to result in soliciting the doctor on a logical/rational (rather than emotional) level to deliver explanations and describe scenarios while producing tension and emotional expressions in patients.

Markers of emotions in doctor's talk also show a significant but inverse correlation: many markers of emotions in the doctor's talk are associated with a greater doctor's initiative in managing the patient's emotional expressions (by providing or reducing dedicated communication space) and with a reduced display of patient's cues/concerns in the VR-CoDES. These results suggest that when the doctor engages in "emotional talk" (sequences of reassurance, jokes or humor, gestures of support), the patient expresses fewer cues/concerns.

It is worth pointing out that ONCode, differently than VR-CoDES, is not limited to emotional content in interactions but focuses on a broader set of key contents in the oncological domain, thus providing a more comprehensive picture of the actual doctor-patient communication processes in this branch of medicine. Moreover, VR-CoDES focuses on short sequences made of a cue or concern and a response, while ONCode relies on the sequential analysis of the entire conversational encounter, therefore providing a more comprehensive picture of unfolding patterns of emotional talk (Del Piccolo et al., 2017).

If these results are confirmed when applied to a broader dataset, this system could become a valuable tool for research in so far as it 1) provides empirical evidence for relevant interactional variables in oncological consultations; 2) enables the opportunity to identify patient-centered communicative "good practices" with particular regard to those communicative actions that may involve the patient, mitigate distress and anxiety, and increase the patient's confidence in the doctor; 3) enables the identification of potential differences in communication with native and non-native patients; 4) increases knowledge about the communication in oncological consultations in contexts (such as the Italian one) that are other than the Anglosaxon one, which is predominant in the literature on medical communication (and communication in general).

Some limitations in the use of the coding system are present as well. The coding scheme relies on the availability of video-recorded consultations and transcripts, because it requires a careful examination of the interaction that would be hardly possible with direct observation of the consultation in progress. More-

over, in its present form and for the previously stated reasons, it cannot be straightforwardly applied to other medical branches.

In spite of these limitations, several benefits derive from using the coding scheme. It focuses on the doctor's behavior, the patient's behavior, and the development of the communicative event. It facilitates cross-national comparative research on doctor-patient communication in a life-saving context such as oncology. It can be used to train clinicians in recognizing misalignments in conversations and patient's expression of concerns, making them aware of the effects of their communication practices, thereby contributing to develop a patient-centered approach and ultimately improve patients' health.

Moreover, the coding system was built according to emic, "bottom-up" procedures, which provides several advantages, especially when considering non-native patients with different languages and cultures. For these patients, communicative behaviors and procedures to build a mutual comprehension may be subject, more than for participants in ethnically concordant interactions, to fractures and negotiations acted upon moment by moment in the conversation.

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APPENDIX A
ONCode coding system

Non-interactional dimensions

0. Classification of the type of visit

Coding dimension	Code	Explanation
Case ID		Code the visit as the name of the file
0.1 First-time encounter	0= no 1= yes	Check if there is evidence that doctor and patient meet for the first time or if they already met in a previous consultation
0.2 Treatment advice	0= no 1= yes	Check if the treatment appears in one of the participants' sentences, if there is evidence that a treatment recommendation (radiotherapy, chemotherapy, hormone therapy) is given during the consultation

1. Contextual codes

Coding dimension	Code	Explanation
1.1 Site	1= Hospital name 2= Hospital name	Hospital ID
1.2 Oncologist	1= Name 1 2= Name 2 3= Name 3	Doctor's ID
1.3 Oncologist gender	1= F 2= M	Check the doctor's name, the video
1.4 Site of tumor	1= Breast 2= Colon 3= Bladder 4= Prostate 5= Uterus	Type and location of the tumor
1.5 Patient age	Number	For example, 70
1.6 Patient gender	1= F 2= M	Check the patient's name, the video
1.7 Patient nationality	1= native Italian patients 2= non-native Italian patients	"Non-native" defined as a non-Italian citizen. Check for evidence in the patient's name, in the data collection sheet, in the consultation
1.8 Patient companion	1= yes 0= no	Check whether a family member or an accompanying person is present at the consultation

Interactional dimensions

2. Doctor's communicative behavior (coding dimension)

Phase of the visit	Code	Explanation	Example
2.1 Opening	0= no greetings 1= presence of greetings and brief self-presentations 2= greetings, self-presentations, small talk, more elaborate exchanges, greater personalization	Check for the presence of sequences of greetings and identification of the patient (such as the request and registration of the patient's name and address)	0= no greetings, no questions 1= ONC: "What is your name?" 2= ONC: "So let's start with the easy questions, what's your name? What did you use to teach? So I have to treat you well, I am a teachers' son, where did you work?"
2.2 Anamnesis	0= no questions about other non-cancer-related diseases 1= the doctor only asks once if the patient has other diseases without investigating further 2= the doctor asks more than one question about the patient's health and her/his previous illnesses. To verify the reliability of the information, the doctor asks the same question in different ways or reformulates what has been said	The doctor asks questions about the patient's health, the presence of other diseases (besides the tumor), the use of medications, and previous surgical interventions	1= ONC: "Do you have any other illnesses besides this one?" 2= (in addition to 1) ONC: "Which medicines do you have at home? Do you have heart palpitations? Do you take something for those? Are the pills round?"
2.3 Cancer problem presentation	0= the doctor does not ask about the cancer detection 1= the doctor asks the patient how s/he found out s/he had cancer, solicits or permits the patient's narrative on this topic	The doctor asks about cancer detection and possibly provides the opportunity for a narrative on this topic	1= ONC: "Did you notice the tumor yourself or were you in a screening program?"

(Appendix A continues)

Appendix A (continued)

Phase of the visit	Code	Explanation	Example
2.4 Cancer diagnostic assessment and treatment recommendation			
2.4.1 Diagnostic assessment and explanation	0= no explanation for the recommended treatment 1= there is an explanation connecting diagnostic assessment to the treatment advised 2= there is a particularly elaborate explanation, with a risk-benefit analysis, or supported by documentation (e.g., schemes on sheets, risk percentages), possibly with metapragmatic formulations clarifying the ongoing activity	The doctor explains the severity and type of tumor as a rationale for recommending possible treatments. The explanation can be more or less argued and possibly supported by documentation (e.g., schemes on sheets, risk percentages)	1= ONC: "So as regards the molecular characterization of the tumor, we will classify it as luminal A-like HH, which is to say, excellent news, because it is the most hormone-sensitive tumor ever" 2= ONC: "Look, madam ((writing on paper)), you had surgery for cancer that, in the worst case, was two millimeters. So it is a two-millimeter hormone-responsive cancer. The risk that it may reappear in ten years (0.8)* … we do not have an exact calculation for two millimeters, we have a calculation on cancers which span between one millimeter and ten millimeters (0.4) and this risk varies, depending on the literature, between six (0.6) and (0.4) fifteen percent. Consider that a woman who has never experienced breast cancer has a ten percent risk to develop it in her lifespan. So it is just a little higher (1.0) ((points to the page)) see, that's just a little higher, so the advantage of the little pill is that it lowers this risk significantly. But since the risk is low it lowers it by one or two percent (1.5), ok?"
2.4.2 Treatment recommendation	0= no treatment advice 1= there is a treatment recommendation (also as a scenario, e.g., because there are tests underway)	The doctor makes a treatment proposal, presents treatment alternatives, and recommends one specifically; explains the possible scenarios and consequences of the treatments.	1= Explicit recommendation: "Hormone therapy is the fundamental therapy for you"; "Your tumor has to be treated with chemotherapy" Embedded recommendation: "Given that you will do radiotherapy, I would also recommend..."; "Hormone therapy may be sufficient although I would try chemotherapy too"
2.4.3 Asking to understand	0= the doctor does not make any request to verify the patient's understanding 1 = the doctor asks to verify the patient's understanding	The doctor verifies that the patient understood what he illustrated in this phase	1= ONC: "Is it all clear so far?"; "Got it?"

(Appendix A continues)

Appendix A (continued)

Phase of the visit	Code	Explanation	Example
2.4.4 Involvement of the patient in the treatment decision-making	0= the doctor does not ask for the patient's opinion, rather, formulates the therapy recommendation as an already made decision. The patient is not considered as someone that has a role in decision-making 1= the doctor asks an explicit question to the patient about her/his opinion on the possibility of undertaking the recommended therapy; or, even if the doctor does not ask a direct question, s/he suggests that the patient think about the proposed medical treatment to arrive at a shared decision in the next consultation. The patient is framed as someone that has a role in decision-making	The doctor asks the patient's opinion on the recommended treatment directly or, indirectly "gives voice" to the patient's possible options	0= ONC: "Anyway, you will have to do radiotherapy no matter what" 1= ONC: "I need to know from you if you want to do it (= the therapy)" Or ONC: "I would tend to do it, as long as you agree"
2.5 Outline of future actions	0= the doctor does not provide any help with the next steps 1= the doctor writes prescriptions and gives suggestions about the next steps BUT does not engage directly (by calling, listing available centers), s/he lets the patient find where and how to carry out the next steps 2= the doctor not only makes prescriptions for the next steps but also actively engages to find contacts and locations to carry out exams or treatments	The doctor provides information on where to go for exams, makes contacts directly, writes prescriptions. Evaluate if the doctor only indicates what to do and refers to others or if he actively engages (provides list of centers, telephone number for appointments, writes reports)	1= ONC: "I need you to have the scintigraphy done for confirmation, in the meantime, I am starting the treatment, but you are going to book it, okay?" 2= ONC: "So let's do it, I'll guide you. First, we do an MRI of the breast. Can she do it at your place ((speaking to the radiologist))? (…) Now let's do something nice, you and I go to talk with the hematologists"
2.6 Closings	0= no greetings, the doctor refers the patient to others for the next appointment 1= there are leave-takings, the doctor gives the next appointment to the patient, the doctor asks if the patient has any further questions, presence of small talk	The doctor takes leave from the patient and possibly provides the next appointment. Opportunities for small talk or questions may arise	0= the doctor delivers the prescriptions, stops talking, and waits for the patient to leave 1= ONC "We'll meet again at the end of the radiotherapy. Is everything clear? Goodbye"

3. Patient's initiatives (coding dimension)

Phase of the visit	Code	Explanation	Example
Evaluated at each stage of the visit	0= the patient says nothing, or answers yes or no, nods to the doctor's proposals. The patient aligns with what the doctor says or asks 1= asks one or more questions, expresses a concern/ not initially raised by the doctor	The patient takes initiatives such as asks questions, expresses concerns, proposes a topic or simply aligns with what the doctor says or asks	0= ONC: "Do you take that medicine? Mitotane?" PAT: "Yeah" ONC: "When it is about to end, you need to tell me" PAT: "Okay" 1= ONC: "So now let me start by asking you a few things, huh?" PAT: "Yes, no… first I would like to know what the histological examination is like" ONC: "Mh mhh. I sent someone to get it, okay?" PAT: "Ah, where?" ONC: "From the hematology laboratory"

4. Misalignments (coding dimension)

Phase of the visit	Code	Explanation	Example
Evaluated at each stage of the visit	0= alignment between doctor and patient, including activities of negotiation of meanings (clarifications, reformulations) of both participants 1= misalignments in co-orientation or mutual understanding on what is being done; the participants, however, repair and re-align again 2= frank disagreements, resistance, discussion of diverging opinions; there is no resolution of the disagreement, participants remain on opposing positions	Episodes of misalignment, misunderstandings, disagreements, and resistance are evaluated at each stage of the visit. They are occasions in which there is a fracture in the co-orientation of participants toward the same activity or in the understanding of the topic. What is evaluated is whether — and with what effort — the participants repair the fracture and find agreement or, instead, remain on distant positions	0= ONC: ((speaking of his last conference in Romania, country of the patient)) "And then we stayed at this hotel, a dream, it was called inter…" PAT: "Intercontinental" ONC: "Which has beautiful staircase … Budapest is beautiful" 1= ONC: "Hh so. the histological exam, I believe that, all things considered, it shouldn't be …???" PAT: "Did you mean this one? ((pointing to the histological exam)) why it has two pluses, I have no clue" ONC: "Yes yes, later I'll explain that one too. ((keeping gaze on documents)) 2= ONC: ((writing while speaking aloud)) "The diameter is-… PAT: "It's small, luckily" ONC: "Be quiet, please ((to PAT while keeping gaze on documents)) diameter centimeters…"

5. Interruptions in the visit (coding dimension)

Phase of the visit	Code	Explanation	Example
Check for markers at each stage of the visit and then score globally	0= there are no interruptions at any stage of the visit 1= up to two interruptions (included) in the visit 2= over two interruptions in the visit	We checked for interruptions at each stage of the visit. We considered interruptions all the moments in which the consultation was suspended due to matters that did not concern the current consultation (and patient). Interruptions due to systematic organizational routines (e.g., the doctor goes out to photocopy the exams) were not counted	Interruptions include: phone calls, the doctor leaving the room, exchanges with the nurse or other doctors entering the room

6. Accountability and expressions of trust in participants' talk (coding dimension)

Phase of the visit	Code	Explanation	Example
Evaluated in the overall visit with a special focus on the stage of "Cancer diagnostic assessment and treatment recommendation"	Doctor's communicative behavior 0= no explanation, does not account for the reasons for the recommendation 1= minimal explanation, not elaborated 2= elaborate explanation, use of metapragmatic markers Patient's communicative behavior 1= one or more topicalizations in which the patient expresses confidence in the doctor 0= absence of topicalizations	Check how the doctor makes her/himself accountable to the patient by providing access to her/his medical knowledge and reasoning, that is, by explaining the rationale used for recommending treatment, by providing alternative options for treatment, by providing metapragmatic markers that help the patient to orient her/himself within the consultation activities Check for patient's topicalizations of confidence in the doctor's advice	PAT= "If the doctor says so I will do it" Or "You are the doctor and I trust what you say" ONC= "When we tell a woman that she has been diagnosed with breast cancer, we practically say nothing because breast cancer is not a disease, it is a set of very different diseases. In 80% of cases they are called ductal carcinoma but under this big name of ductal carcinoma there is everything [...] On the basis of this information we can understand two things, first your personal degree of risk that in the future the disease may give you problems [...] second, information on preventive treatments. Is everything clear so far?"

7. Markers of uncertainty in doctor's talk (coding dimension)

Phase of the visit	Code	Explanation	Example
Evaluated in the overall visit with a special focus on the stage of "Cancer diagnostic assessment and treatment recommendation"	0= no mention 1= one or more mentions	The doctor displays uncertainty about the outcomes, for example, modalized or evidentialized moods, reference to probability, minor benefits, uncertainty of outcomes. Expressions of uncertainty due to missing tests, the state of the art of oncology about specific cases, doctor's personal uncertainty (e.g., rare cases)	0= no mention 1= "This may not do very much"; "This could have a small benefit"; "I'd like to double-check this"; "Before telling you what to do, I want to wait for the genetic test result"

8. Markers of emotions in doctor's talk (coding dimension)

Phase of the visit	Code	Explanation	Example
Check for markers at each stage of the visit and then score globally	0= if there is no marker 1= if one or more markers are present at least in one stage of the visit 2= if one or more markers are present in at least two stages	We coded whether in the doctor's talk there are sequences of reassurance (e.g., the doctor highlights positive sides of the situation), if there are jokes or humor, if the doctor replies to emotional concerns expressed by the patient, if the doctor touches the patient as a gesture of support (such as touching hands, pat on the shoulder, pat on the cheek)	0= if there is no marker 1 and 2= ONC: "A little more effort is required and things are going to turn out fine" Or "It is better not to get anything, but if you have to get something, you couldn't have a smaller one than this"

Note. * The number in brackets indicates the number of seconds the individual paused.