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Com-On Questionnaire: Development and validation of a questionnaire for evaluating communication skills of oncologists

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Abstract

Objective: The present study aimed to develop and validate an instrument for assessing the communication skills of oncology physicians from a patient's point of view.

Methods: A first draft of the questionnaire was compiled based on skills reflecting good physician–patient communication identified in the literature. The questionnaire was critically revised by experts to ensure the validity of its contents. The revised questionnaire was completed by a sample of 153 cancer patients. The questionnaire was developed in German and later translated into English.

Results: After analysis using classical test theory and an exploratory factor analysis, four different factors could be extracted. These factors were labelled setting, patient-centeredness, empathy and consulting competencies. Unsuitable items were eliminated within the analysis. All remaining items hold an appropriate degree of selectivity, item difficulty and reliability/consistency.

Conclusion: A novel questionnaire for evaluating communication skills of physicians was developed. It contains 36 items and is named 'Com-On Questionnaire: Questionnaire for the Evaluation of Physician's Communication Skills in Oncology'.

Practice Implications: The questionnaire is suitable for measuring both the strengths and deficits within the physician–patient communication in oncology from the patients' perspective.

KEYWORDS
communication skill training, exploratory factor analysis, oncology, patient-centred communication, physicians' communication skills, questionnaire development

1 | INTRODUCTION

Communication between physicians and patients is an important topic in the field of oncology, most notably with regard to medical attention and the satisfaction of patients (Fischer et al., 2019; Gilligan et al., 2017). Communication in oncology can be challenging because of the possible existential threat of life and the distressing treatments (Sisk & Mack, 2018). Patients experience insecurity, lack of control, stigma and anxiety associated with a cancer diagnosis and the complexity of medical information (Huang et al., 2021; Niedzwiedz et al., 2019). This adds a greater emotional dimension to the interaction between patients and physicians. Cancer patients often rely on their physicians and want them to provide social support as well as medical counselling (Samuel et al., 2020). By identifying the patient's concerns, problems and specific worries, a physician can help the patients to cope with their illness and its treatment (Hashim, 2017).

Several studies have demonstrated the importance of a patient-centred approach for adequate patient–physician communication (Epstein et al., 2017; Gilligan et al., 2017; Tsvitman et al., 2021). In this approach, the physician considers the perception, attitudes and needs of the patient regarding an appropriate medical consultation and orients their behaviour and communication skills towards this (Epstein et al., 2017). Good communication skills include establishing trust, gathering information, addressing the emotions of the patient, assisting in decisions about healthcare and treatment plan and enlisting the collaboration of the patient and family members in treatment (Hashim, 2017). This approach encourages focusing on open questions at the beginning of a consultation, identifying patients' concerns, expressing empathy, listening without interruptions and summarising information (Epstein et al., 2017).

Another approach is the assessment of communication needs of patients. The majority of studies treating patients' communication needs are concerned with information needs with problems in giving and receiving information, which represents one of the most frequently mentioned deficits by patients (Braun et al., 2019; Farin & Baumann, 2014; Kim et al., 2020; Li et al., 2020; Richter et al., 2015).

For more than 20 years, studies have attempted different approaches to measuring satisfaction and needs of patients concerning communication skills of their physician: Dale and colleagues (2004) designed a scale for assessing the importance of information that is needed by prostate cancer patients. Butow et al. (1996) developed a questionnaire about patients' experiences and preferences in terms of communication in a medical consultation, including the quality of discussion about treatment options. More specifically, research of oncologist–patient communication by Parker et al. (2001) assessed patients' preferences for how they would like to be told news (especially bad news) about their cancer disease. In this assessment, patients rated the characteristics of the context and content of the conversation as well as the characteristics of their physician. While there is a need to enhance patient–physician communication in oncology to improve the patient experience and outcome, appropriate tools to assess the patient experience are still lacking. Only some instruments focus specifically on communicative needs of cancer patients

and were mostly developed for certain types of cancer, specific disease stages or specific basic treatment conditions. Four instruments, which found to be close to our aim of research, are to be described in detail:

1. The 'Quality of Communication Questionnaire' (Engelberg et al., 2006) evaluates communication skills of physicians in palliative care and is used to evaluate the effects of training procedures of communication skills. In the first instance, it is a self-report questionnaire about the quality of an end-of-life communication. Some of the items served as base for the Com-On Questionnaire: (1) talking with patients in an honest and straightforward way; (2) listening to patients; (3) encouraging questions; (4) involving the patient in treatment discussions about care and (5) asking about spiritual, religious beliefs.

2. The 'Measure of Patients Preferences' (Parker et al., 2001) explores the communicative preferences of cancer patients concerning breaking bad news. Respondents are asked to rate how important each item would be to them when given the news about a cancer diagnosis or recurrence. In an application to cancer patients, the results showed that their preferences can be grouped by means of three dimensions: (1) content (expertise of the physician and various aspects of the content of the conversation), (2) facilitation (where and when the information is conveyed) and (3) support (includes offering comfort and support to the patient) (Parker et al., 2001).

3. The 'Communication Assessment Tool' (CAT; Makoul et al., 2007) measures patients' perceptions of physician performance in the area of interpersonal and communication skills and the achievement of key communication tasks. As the mean of the measures is quite high ($M = 4.68$ across all items on a 5-point Likert scale, $SD = 0.54$), Makoul et al. recommend dichotomising scores by reporting the proportion of 'excellent' ratings and suggest to use the CAT alongside with other assessment instruments.

4. The 'Supportive Care Needs Survey Questionnaire' (Sanson-Fisher et al., 2000), German version by Lehmann et al. (2012), assesses supportive care needs among cancer patients. It measures patients' perceived type and magnitude of need for support in five domains: health system and information, psychological, physical and daily living, patient care and support and sexuality needs. Five of its items were partly modified and included in the Com-On Questionnaire: (1) Being given information (written, diagrams drawings) about aspects of managing one's illness and side effects at home, (2) being adequately informed about the benefits and side effects of treatments before choosing to have them, (3) being informed about test results as soon as feasible, (4) being informed about things one can do to help themselves to get well and (5) being treated as a person rather than just another case.

In the meantime, some other research groups developed questionnaires to evaluate the communication, for example, the European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Group (QLG) (Arraras et al., 2017). It did not have an influence

on the development of our instrument, but the different approaches and foci will be contrasted in the discussion.

The aim of this study was to develop a questionnaire to evaluate communication skills of physicians, especially oncologists, from a patient's perspective open, without a restriction on content-specific situations. The present study combined the assessment of information needs with other domains like the emotional needs of the patients and, therefore, is to serve as a more holistic approach to evaluate communication.

2 | METHODS

The construction of the questionnaire took into account the classical rules of designing a questionnaire (Moosbrugger & Kelava, 2012). The following quality factors were considered in the process of the construction of the questionnaire: objectivity, reliability/consistency, validity, economy, utility and reasonability. The development of the questionnaire can be divided into different stages:

- Item selection
- Scale selection
- Revision of the questionnaire by discussing the selected items and scale regarding the guidelines of item construction repetition and signification within the research team
- Revision by experts

Item selection: For the generation of the items, we did a literature research within the data bases pubmed, psychindex and psychinfo. The key words included 'unmet needs, communication needs, physician–patient communication, communication needs, unmet needs, oncology communication, oncology needs and physician communication. It was ruled out that unmet communication needs were documented over numerous studies and were mentioned within a high number or with a stressed importance. The selected items were then verified as relevant within unstructured explorative short interviews with cancer patients and experts. A total of 44 items were identified within the scope of this first step of the research process. All items were generated according to the rules of item construction (comprehensive, positive, short, easy to understand, uniqueness, no universal expressions, clear definition of time frames, no suggestive questions, no redundancy, closed questions to increase economy and objectivity of analysis). Some items of the Supportive Care Needs Survey (Lehmann et al., 2012), which focused on communication, seemed to fit to the aim of our questionnaire. So we asked for permission to integrate those items in the development of our questionnaire.

Scale selection: The first version of the questionnaire was oriented towards the Supportive Needs Survey (Boyes et al., 2009) and its German version (Lehmann et al., 2012). We chose a rating scale to enable well-differentiated answers with a high economy and objectivity of analysis. To reach maximum reliability and validity, we choose a 5-point Likert scale (Likert, 1932) which contained clearly named answer categories with the following answer options: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. In addition, the answer categories were labelled numerically to enable an interval scaling for all points of the scale and to enable the quality of data.

The labelling system chosen used a combination of both numerical with verbal ratings, and the labels were ordered hierarchically. In addition to the estimation of the physicians' communication skills, patients were also asked to rate on a 2-point scale if the different aspects of communication were important to them (yes or no). This second scale was helpful to interpret the global satisfaction of the patients with their oncologists. If one aspect was not important to a patient, then this aspect had no impact on the global satisfaction of the patient. The clarity, face and content validity of the first version was evaluated in two further steps.

First revision: The questionnaire was revised by discussing the selected items and scale within the core research team. Eligible items were identified by interrater consensus. All three expert raters had to agree on clarity and on content validity of the questionnaire from the patient's point of view. Some further suitable items were added within this session. This revision process followed the guidelines regarding the construction of items (Boynton & Greenhalgh, 2004; Dell-Kuster et al., 2014; Moosbrugger & Kelava, 2012). Items that did not fulfil the requirements of the guidelines were excluded or adjusted.

Second revision: The questionnaire was critically revised by 10 experts from Germany and the United States from different fields of expertise (e.g. research, clinical treatment and consultation, coaching, teaching and cancer patients). The experts were asked to estimate the integrity of the items, the overlapping/repetition of the items, the clearness/distinctness of the items, the lack of ambiguity and their overall understandability. The survey of the experts was to ensure content validity of the questionnaire. Some experts suggest adding new items to the questionnaire. The revised version of the questionnaire contained 55 items (see supporting information: applied questionnaire).

In each development process, we handed out the preliminary version to experts and patient experts to ask for feedback about clarity. If there was unclarity, we modified the wording.

The study was approved by the ethical review committees of the Technical University of Munich and the University Hospital of Cologne, both located in Germany.

2.1 | Participants and study procedure

The questionnaire was intended for adult cancer patients who were faced with a cancer diagnosis at least once in their lifetime regardless of the type and stage of cancer. Exclusion criteria were as follows: age below 18, inadequate knowledge of the German language and an acute mental disorder (e.g. psychosis). In sum, the questionnaire was completed by 162 cancer patients; nine data sets were excluded because of too many missing data. On this account, only the data sets of 153 patients were subsequently analysed.

The revised questionnaire was carried out in an online version (SoSci Survey) and a printed version. Both versions were supplemented by a sociodemographic questionnaire and a questionnaire concerning the social support, F-SozU (short-form, 14 items; Fydrich et al., 1999).

Fifty-six different institutions were contacted: hospitals, doctors' offices, self-help groups and counselling centres in the areas of Munich, Cologne and the Ruhr-area. Twenty-three of the 56 contacted institutions answered. Twenty institutions permitted to hand out the questionnaires. At the beginning of the questionnaire, the patients were given information and instructions (see supporting information).

The link for the online questionnaires was distributed through online networks: bladder cancer forum, Morbus Hodgkin forum, mailing lists of the University of Cologne, cancer self-help groups on Facebook and the Facebook page of the DKFZ (German Cancer Research Center).

The instrument was named Com-On Questionnaire, which refers to the topic of a related study (Niglio de Figueiredo et al., 2015). The questionnaire was developed in German and later translated into English.

2.2 | Statistical analysis

The anonymised data collected via print and online versions of the questionnaire were evaluated with IBM SPSS Statistics (Version 21, IBM Corporation, Armonk, USA). In the beginning, a manipulation check of the data was performed. Data sets with high amounts of missing data (>20% non-responses) and high floor or ceiling effects (90% of the questions within a data set were answered with one of the extreme response options; 1 or 5) were eliminated. To conduct the analysis, complete data sets were needed. Based on the assumption that the missing data are 'missing completely at random', that is, not subject to any systematics, single missing data were replaced by an estimated value that was the result of a missing value analysis using the regression method (Dziura et al., 2013). The questionnaire was evaluated under consideration of the classical test theory. A descriptive analysis, an exploratory factor analysis and the analysis of correlations were performed.

3 | RESULTS

3.1 | Demographic variables

A total of 162 participants with 19 different types of cancer completed the questionnaire. A total of 153 of the data sets met the standard in order to be included in the analysis. The age of the participants ranged from 19 to 85 years (mean = 56.75, SD = 14.15). About 67.3% of these participants were female and 32.7% were male. On average, participants were treated by 4.39 (range = 1–17) physicians during their illness. A visual rating scale (ranging from '1 = no impairment' to '10 = strong impairment') was used to measure the

subjective impairment participants experienced in daily life due to their cancer diagnosis. The descriptive analysis revealed an average impairment of 5.15, which can be seen as moderate (see Table 1).

3.2 | Initial analysis

In the first round, five of the 162 data sets with more than 20% missing values and four data sets with a tendency towards extreme values were excluded from the analysis (see also Section 2.2). Then, in the second round and regarding the remaining 153 data sets, items with high floor or ceiling effects (more than 50% of respondents selecting one of the extreme response options), a high frequency of missing values and low discriminatory power and reliability/consistency were eliminated: One item, 'my physician talks to me about spirituality', was evaluated as irrelevant by 63% of the subjects and had large floor

TABLE 1 Characteristics of the sample

Characteristics (number)	% (number)
Sex (n = 153)	
Male	32.7 (50)
Female	67.3 (103)
Mean age (n = 153)	56.75 (SD = 14.15)
Nationality (n = 153)	
German	94 (144)
Other	6 (9)
Relationship (n = 153)	
Yes	76.5 (117)
No	23.5 (36)
Employment status (n = 151)	
Employed/student	27.2 (41)
Sick leave	17.2 (26)
Retirement/not in paid employment	55.6 (84)
Diagnosis (n = 151)	
Breast cancer	42.2 (64)
Prostate cancer	12.6 (19)
Malignant melanoma	8.6 (13)
Colon cancer	5.3 (8)
Bladder cancer	4.0 (6)
Cervical cancer	3.3 (5)
Bronchial carcinoma	3.3 (5)
Other	20.7 (31)
Current treatment (n = 153)	
None/aftercare	30.2 (46)
Stationary	7.3 (11)
Day-care treatment	3.1 (5)
Ambulant	59.4 (91)

Note: Excluded data sets that were eliminated due to missing values and extreme values as presented in Section 3.2.

TABLE 2 Principal axis analysis with Promax rotation of the items of Com-On Questionnaire

Item	Factor (loadings)			
	1	2	3	4
(01) The physician starts the conversation appropriately.	0.834			
(02) The physician closes the conversation appropriately.	0.797			
(03) The physician structures the conversation.	0.670			
(04) The physician is focused during the conversation.	0.631			
(05) The physician answers my questions completely.	0.618			
(06) The conversation with my physician takes place in a calm atmosphere.	0.592			
(07) The physician uses his vocabulary cautiously.	0.561			
(08) The physician introduces himself appropriately.	0.529			
(09) The physician is prepared for our conversations.	0.519			
(10) The physician sits down to me when he talks.	0.489			
(11) The physician delivers important news at an appropriate time.	0.460			
(12) The physician is available in case of queries.	0.431			
(13) The physician repeats key information to make sure that I understood.		0.790		
(14) The physician informs me about behavioural changes that could prove my wellbeing (i.e. nutrition).		0.734		
(15) The physicians ask me to estimate the state of my disease myself		0.665		
(16) The physician summarises important contents of our conversations.		0.643		
(17) The physician provides breaks during the conversation (i.e. to recover emotionally and to prepare questions).		0.601		
(18) The physician asks how many information I'd like to receive.		0.534		
(19) The physician illustrates his explanations with images or sketches.		0.473		
(20) The physician provides information to cope with the disease.		0.436		
(21) The physician understands my feelings.			0.714	
(22) The physician treats me like a human being (not like a 'bundle of symptoms' or a case).			0.692	
(23) The physician gives me hope.			0.568	
(24) The physician supports me during the conversation.			0.542	
(25) The physician considers information from my personal history within the conversation.			0.511	
(26) The physician wants me to participate when making decisions about my treatment.			0.483	
(27) I can talk openly to the physician (i.e. about fears).			0.483	
(28) The physician asks me about my feelings.			0.308	
(29) The physician informs me about different alternatives regarding my disease.				0.684
(30) The physician talks to me about the progression of the disease even when the perspective is unfavourable.				0.645
(31) The physician explains diagnostic results in a detailed and understandable manner.				0.603
(32) The physician explains possible risks and side effects thoroughly.				0.501

(Continues)

TABLE 2 (Continued)

| | Factor (loadings) | | | |
Item	1	2	3	4
(33) The physician informs me about test results as soon as possible.				0.461
(34) The physician explains technical terms.				0.323
(35) The physician thoroughly informs me about the effectiveness of the treatment.				0.340
(36) The physician provides information about the disease and its treatment that is understandable in regard to content.				0.310

Note: Items loading higher that >0.30 on more than two factors were assigned with regard to the content of the intended scale.

effects and low discriminatory power, so it was removed. Seven other items, showing a median and a mode of five, were removed due to ceiling effects ([1] 'the physician informs me about tumor clearance as soon as possible', [2] 'the physician speaks clearly and precisely', [3] 'the physician waits until I've completed my sentences', [4] 'the physician takes me seriously within the conversation', [5] 'the physician is attentive within the conversation (nods, maintains eye contact)', [6] 'the physician is a permanent contact person' and [7] 'the physician communicates all test results fully and honestly'). All other items were completed by over 90% of the subjects, so no further items were removed based on missing values. Each of the remaining 46 items displayed high discriminatory power (>0.50).

3.3 | Factor analysis

To investigate the factor structure, an exploratory factor analysis was conducted. First, the data were analysed with respect to the requirements for exploratory factor analysis. The value of the Kaiser–Meyer–Olkin Measure of Sampling Adequacy for this set of items was KMO = 0.942, which can be classified as excellent. Bartlett's test of sphericity further confirmed that the data set was appropriate for factor analysis (χ^2 = 5022.19, p < 0.001; df = 1035).

Four factors could be identified as essential based on eigenvalues, which was the result of a missing value analysis, scree test and parallel analysis. The correlation of the four factors indicated a principal axis analysis with Promax rotation.

3.4 | Factor structure

After rotation, the four factors explained 60% of the total variance and were judged to represent separate scales related to physicians' communication skills in oncology.

Factor one explained 47.7%, factor two 5.4%, factor three 3.8% and factor four 3.0% of the variance. Table 2 lists the items according to their factor loadings.

After rotation, five items below a rotated factor value of <0.40 that lacked fit to exclusively one factor were deleted: 'the physician

devotes plenty of time to me', 'the physician recognizes when I want to withdraw and not talk anymore', 'the physician asks if I understand the information given', 'the physician provides as much information as possible' and 'the physician provides enough time for questions'.

In addition, four items that were redundant after factor analysis were further eliminated: 'the physician names my feelings', 'the physician understands my problems', 'the physician verbalizes all relevant information clearly' and 'the physician provides emotional support regarding my reactions towards the disease'.

One item was deleted due to low relevance according to the participants and lacking fit to the construct: 'the physician wants to know about my social circumstances (family, friends, social support)'.

Four items were assigned to a factor with regard to the content of the intended scale: 'the physician conveys information about the disease and its treatment understandably in regard to its content', 'the physician provides information about the effectiveness of the treatment', 'the physician offers emotional support regarding my reaction to the disease' and 'the physician asks how I feel'.

Every other item was assigned to a factor following high factor loadings. Thus, four different scales could be identified: (1) setting (item 01–11), (2) patient-centeredness (items 13–20), (3) empathy (items 21–28) and (4) professional consulting competencies (items 29–36).

The factorial structure of the resulting questionnaire is shown in Table 2.

3.5 | Consistency and discriminatory power

Cronbach's α for the whole scale was α = 0.974. The first factor labelled 'setting' showed an internal consistency of α = 0.921. The second factor 'patient-centeredness' revealed a value of α = 0.878. The third factor 'empathy' and the fourth factor labelled 'professional consulting competencies' also showed internal consistency (α = 0.897; α = 0.903).

After deletion of item 4, all remaining 36 items hold an appropriate degree of selectivity difficulty (π = 0.549 to 0.810). The four factors revealed significant correlations from r = 0.712 to 0.809 (p < 0.001); see Table S1 in the supporting information.

3.6 | Final version of the questionnaire for the evaluation of physicians communication skills in oncology

The final version consists of 36 items, whereby one item measured the overall satisfaction with the physician's communication skills. The global item was not included in the analysis and was therefore not assigned to any of the scales. Moreover, it serves as an additional measurement at the end of the questionnaire to evaluate the patients' overall satisfaction with the treating physician.

Four different scales could be identified: (1) creating framework conditions (11 items), (2) patient-centeredness (eight items), (3) empathy (eight items) and (4) professional consulting competencies (eight items); see also Figure S1 in the supporting information.

4 | DISCUSSION

Despite the continuing appreciation of the importance of effective patient–physician communication in oncology, reliable and broadly applicable tools to assess the communication skills of the physician from the patients' view are lacking to date. This article reports on the development and validity testing of a novel 'Com-On Questionnaire: Questionnaire for the Evaluation of Physicians' Communication Skills in Oncology'. It was designed to assess the oncology patient's perspective on the physician's communication skills, regardless of the stage or type of the disease and its treatment.

The results indicate high internal consistency (measures by Cronbach's alpha) for all developed scales. Furthermore, all remaining items hold an appropriate degree of selectivity and item difficulty. All extracted factors can serve as subscales. The first factor that could be identified within the analysis was 'setting'. This subscale measures the physician's ability to create a calm and trustful atmosphere and to structure the conversation. It was shown that the understanding and remembrance of important information are influenced by the structuring of communication (i.e. sketches and diagrams) (Baile et al., 2000; Frankel & Stein, 2001).

The second subscale was named 'patient-centeredness'. It assesses if the physician identifies the patient's expectations, needs and preferences regarding communication within the consultation. Research has shown that patients often do not express their communication needs voluntarily (Norouzinia et al., 2016). Moreover, communication need varies depending on gender, age, education, type of cancer, state and personal life circumstances (Kim et al., 2020; Li et al., 2020; Norouzinia et al., 2016). Therefore, it is even more important to assess the patients' need for information and communication in a structured way and to subsequently deliver the right amount of information (Husson et al., 2011).

The third subscale 'empathy' reflects if the physician is capable of showing interest in the patient's feelings and if they react in an appropriate and supporting way. A trustful relationship and a supporting atmosphere were shown to be important factors in patient's perception of the physician's commitment (Pichler et al., 2021). Furthermore,

cancer patients wish for validation and empathic support in order to be able to cope with the existential threat and probable stigmatisation caused by their illness (Arora, 2003).

The fourth scale 'professional consulting competencies' measures verbal and nonverbal communication skills that determine whether both parties are able to provide and process all information given. It includes aspects like listening without interruptions and summarising information, which are said to be important communication skills as mentioned above (Fallowfield et al., 2003). There are numerous studies revealing severe miscommunication, and these studies emphasise the need for clearer and patient-centred communication (Farin & Baumann, 2014; Fujimori et al., 2014; Li et al., 2020; Norouzinia et al., 2016).

Overall, the four factors enable physicians to reflect upon their communication strategies related to a specific patient in a specific setting. The novelty of the developed questionnaire is that it targets diverse groups of cancer patients and includes a high range of contexts (i.e. independent of the type of cancer, treatment method and context of treatment). In addition, in comparison with other instruments (Bieber et al., 2011; Hirsch et al., 2012; Neumann et al., 2012, 2008; Preusche & Wagner-Menghin, 2013; Simon et al., 2007), the questionnaire does not only include particular aspects of communication (like the provisioning of information or the physician's empathy) but also covers a wide range of communication competencies of the physician during the whole consultation on different levels (emotional, factual, technical, etc.). These two characteristics of our questionnaire, its multidimensional approach and its nonspecificity, allow for a better generalisation and an uncomplicated use in the daily clinical practice.

Moreover, as attested by experts, the questionnaire has a high standard of content validity. Importantly, many questionnaires on patients' perception of their physicians' communication have focused on end-of-life situations and the transition to palliative care (Grunfeld et al., 2008). The novel questionnaire presented herein may instead be used for patients experiencing all cancer stages and, hence, targets a broader patient pool. Moreover, it may be used to evaluate the impact of strategies that are incorporated into the medical curriculum and on-the-job trainings for physicians to improve oncology physician's communication (Fujimori et al., 2014; Hinding et al., 2021; van de Water et al., 2020).

While this questionnaire was developed, the EORTC QLG developed a similar instrument to measure the communication between cancer patients and their physicians (Arraras et al., 2017). While this EORTC QLQ-COMU26 questionnaire was validated in cancer patients from several countries, one limitation is that it specifically excluded information disclosure, as this aspect is covered by another EORTC questionnaire. Information disclosure is, however, a key aspect of the factors incorporated into the Com-On Questionnaire, and it is, in general, considered a highly relevant aspect of patient satisfaction (Palma et al., 2014).

One critical aspect of the Com-On Questionnaire could be that it contains 36 questions and, even though it offers detailed feedback about the physician's communication performance, it may require too much time or concentration from the patient. However, Henrich et al. (2001) showed that questionnaires with only one global score usually

score higher, indicating ceiling effects, than questionnaires using a differentiated approach. Thus, this argument speaks for the rather long version of the questionnaire.

Another limitation of the present study is that the initial sample of 162 patients as well as the adjusted sample consisting of 153 patients might be biassed, as it relied on the voluntary assistance of cancer patients referred by hospitals, clinics, and internet resources. This approach has the advantage of assessing a wide range of patients with different diagnoses of cancer and stages, but it cannot ensure a representative sample of cancer patients.

We developed the questionnaire as scientifically profound as possible and applied several steps of development according to the guidelines of (Moosbrugger & Kelava, 2012). Maybe a more sophisticated and more extened guideline such as the guidelines of EORTC (2011) could have been applied. But we hypothesise that the scientific quality would not have been more improved.

Since the questionnaire was not validated with other psychometric instruments so far, other aspects of validity than the content validity of the questionnaire could not be evaluated. However, high content validity can be assumed as a result of the evaluation of the first draft by various experts. The questionnaire has been developed in a German sample as a first step. Validation on other samples and in different languages and countries would improve validity more and is intended. This questionnaire is considered a valuable tool for quality assessment and quality improvement in different fields of oncology. For example, it can be used to evaluate training measures implemented to improve the communication skills of physicians. Given the fact that only a few such trainings were evaluated, including patient rapport, the questionnaire could be a substantial contribution in the attempt of closing this gap in future research.

CONFLICT OF INTEREST
None.

AUTHORS DECLARATION
We confirm that all patient and personal identifiers have been removed or disguised so the patients or persons described are not identifiable and cannot be identified through the details of the story.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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