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Observation of nurse–patient interaction in oncology: review of assessment instruments

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ABSTRACT

The aim of this review is to identify assessment instruments that can be used for analyzing sequences and can be applied to research into nurse–patient communication in cancer care. A systematic search of the literature revealed a variety of methods and instruments applicable to studies recording nurse–patient interaction. The studies that were qualitative in nature offered valuable information on observational research in general, on procedures relating to informed consent and observational arrangements in nursing practice. The quantitative studies provided an insight into the content and structure of the interaction by describing communication concepts or by frequency counts of previously determined behaviours. Systematic research into interaction sequences was not found. However, some of the quantitative instruments identified could be adapted for this purpose. The complexity and time-consuming nature of observational research highlight the need for efficiency. For instance a combination of quantitative and qualitative instruments could be considered.

1. INTRODUCTION

Communication is an ongoing theme in the literature on nurse–patient interaction. Major nursing tasks, such as assessing the specific needs of patients, delivering physical care, providing socio-emotional support, negotiating and exchanging information, all have to do with communication and are subject to the rules of interaction. In this light, communication is recognized as an important aspect of high-quality nursing care. As a consequence, nurses need to have skills to create good interpersonal relationships, which allow them to share in the patient's experience and concerns, in addition to achieving the goals and upholding values of healthcare. This has relevance for nursing in general, but is even more important in taking care of patients suffering from a life-threatening disease such as cancer. Studies on the patient's views show that in particular people undergoing invasive treatments have special expectations of their nurses. They expect understanding, empathy and support and may consider nurses as the primary communication link to the medical system and the oncologist [1].

A female patient undergoing chemotherapy and suffering from considerable side effects put it as follows:

> "I ask the doctor more questions about the medical side. I look for practical advice about daily problems and support from the nurse. They know better what it means to have all those problems and side effects when you are at home. They show understanding and are more willing to help you find solutions for problems that cannot be solved by medication. . . "

Communication plays a major role in this. Moreover, recent studies show that communication should not be merely seen as peripheral to the actual outcome of cancer treatment [2,3]. Adequate advocacy and providing informative and emotional support may result in better coping behaviour in cancer patients, in stress reduction and even in an improved functioning of the immune system [4–7]. This means that nurses' communication skills not only reduce distress and improve cancer patients' quality of life, but may also indirectly affect the course of the disease.

Developing and expanding knowledge in the area of nurse–patient communication may contribute to the improvement of nurses' communication skills and thus to better quality of care provided by oncology nurses. To determine interaction difficulties and to evaluate whether nurses attune to their patients needs, it is necessary to study nurse–patient communication in detail. The advent of video for research purposes has brought several opportunities. One of the advantages of using video is that recordings provide multi-sensory information about both participants and the context of the interaction. Instead of assessing behaviours such as an 'open attitude', 'showing understanding' and 'being a good listener', actual verbal and nonverbal behaviour can be viewed, which offer options for describing communication difficulties or evaluating training effects. However, this demands observational techniques that do justice to the interactive nature of communication.

Since video recording was introduced in nursing practice, the number of observational studies is increasing. Various observational methods have been developed. There are qualitative studies, collecting unstructured observational data on naturally occurring communication, often completed with interviews and field notes [8,9]. In addition, there are more quantitative observational methods, with a molar approach, which assess general defined skills or units of activities [10,11], and observation tools with a molecular approach that count the number of predefined specific behaviours [12–14]. However, existing studies hardly pay attention to the dynamic course of the interaction, i.e. the way nurses and patients influence one another. This is an omission, because there are indications that healthcare providers' behaviours, such as their response to cues, posing open-ended questions or showing empathy, encourage patients to express their concerns [10,15,16]. This, in turn, may reduce patient feelings of anxiety and uncertainty [17], which provides space to assimilate information and can lead to development of effective coping strategies [18–20]. On the other hand, nurses may inhibit patients by ignoring cues, giving premature assurance or by changing the topic. These behaviours may prevent a patient from giving information and expressing concerns [10,21].

To disclose these mechanisms and observe what actually happens during a nursing encounter advanced observational instruments are needed, focusing on interaction sequences. Analyzing sequences of successive communication acts enables to investigate how patients for instance express their needs and concerns, and how nurses respond to these cues.

Clearly, only sequential analysis allows conclusions relating to the interaction, and can show that specific communication strategies influence the quality of the interaction.

Making statements on the quality of nurse–patient communication demands that both parties are taken into account [22,23]. Interactive data requires the analysis of sequential organization in order to identify patterns of interaction and to show how conversation partners align their utterances in the dialogue, the so-called local synchronization. Apart from that, sequential content coding of topics under discussion may provide an insight into the global structure of the nurse–patient interaction [24].

The aim of this review is to identify assessment instruments that can be used for analyzing sequences and can be applied to research into nurse–patient communication in cancer care. A comprehensive review and comparison of existing instruments in nursing research will provide an opportunity to select instruments and to build on and attune to international research, learning from other researchers' experience. Specifically, the following research questions have been addressed:

1. What observational instruments are currently used in research into communication in nursing care?

2. Which of the observational instruments under review are applicable to sequential analysis of the nurse–patient interaction?
3. Which of the observational instruments under review are applicable to nursing care in oncology?

2. METHODS

In order to obtain the international literature on research into nurse–patient communication, a search was performed in the Cumulative Index of Nursing and Allied Health Literature (CINAHL) (1992–2001) and PubMed. The following keywords or combination of keywords were used: 'nurse–patient relationship' or 'nurse–patient communication' or 'nurse–patient interaction', combined with 'video', 'audio', 'observational study', 'assessment instruments', 'observational instruments', 'cancer care', 'oncology nursing', 'cancer nursing' (see Table 1). Because of overlap with CINAHL, in PubMed fewer keywords were used. Since the focus of our study was on medical healthcare, a study of PsychLit was considered as nonobligatory. Nevertheless, to cover relevant papers in the psychological area and area of linguistics, snowball sampling was applied. In some instances correspondence took place with the original authors. More than 550 titles and abstracts were retrieved from these searches (see Table 1).

[TABLE 1]

The ultimate goal of this study was to identify instruments that could be used for analyzing sequences in nurse–patient communication. A prerequisite for the analysis of communication sequences is the collection of information on the components of communications that are readily observable, easy to record and offer data suitable for statistical procedures. Consequently, it seems reasonable to take only studies into account that are quantitative in nature. However, limiting research to quantitative studies may not give a true picture of the setting. Because it was expected that both qualitative and quantitative studies could provide relevant knowledge on measurement of nurse–patient communication, both research traditions were considered. However, to keep the data set manageable, a two-stage approach was used. In the first appraisal, aiming at a full picture of research directed at observation of nurse–patient communication (research question 1), two authors (WCV and LT) independently assessed 553 abstracts using the following inclusion criteria:

- the study was directed at the interaction of nurses and patients;
- the study involved real-time assessment or indirect observation of real-life nurse–patient interaction (i.e. by audio or videotape recording);
- the study was published in English or Dutch.

A total of 69 articles describing 46 different studies met the selection criteria of the first phase. From two studies, reporting on research in the psychiatric care setting, a reprint could not be obtained. The remaining 44 studies were included in the review, regardless of their quality (reliability and validity) and sample size.

In the next stage, within the studies included, a selection was made of studies that reported the use of instruments aiming at systematically observing nurse–patient communication. Another set of criteria had to be met for studies included in this part of the review:

- the instrument has a structured approach allowing systematic observation of components of nurse–patient communication;
- the instrument provides data suitable for quantitative analysis;
- the instrument offers the option of analyzing interaction sequences, i.e. observes behaviour units of both participants along a time trace;
- the instrument offers cues for instrument development in oncology nursing research.

To answer the second and third research question the instruments that met the latter set of criteria were studied in detail. First, a description of content and features was made. Then, methods of

assessment, area of use, reports of reliability and validity, option for sequential analysis application and suitability for the oncology nursing setting were studied. It was inevitable that some studies are mentioned in several parts of Section 3.

3. RESULTS

The search strategy in the first stage of the study (answering research question 1) provided 69 articles, reporting 44 studies. Of these studies, 21 can be classified within a qualitative approach. These are presented in Table 2, arranged following research tradition and in chronological order. Twenty-three studies followed a quantitative approach and are described in Table 3. When several articles reported on the same study, only the most recently published one was described.

[TABLE 2]

3.1. Observational instruments currently used in research into communication in nursing care

3.1.1. Qualitative research

The qualitative researcher seeks to identify patterns, commonalities and relationships in naturally occurring events to describe or explore reality or to develop conceptual models. In qualitative studies, data are collected with a minimum of structure in order not to overstep characteristics of the natural circumstances. Often observational data are supplemented with field notes and interviews with participants. The analysis of qualitative data is an intensive procedure, resulting in reports on the researcher's interpretation of naturally occurring events, including excerpts from 'raw' observational material as evidence or as an illustration.

The research traditions that have provided theoretical underpinnings for qualitative studies come primarily from disciplines of social sciences [25]. As Table 2 shows, there is a variety of approaches. The first three studies use ethnographic analysis, which is the primary tradition in anthropology. Naturally occurring behaviour is described and interpreted, or the assumption that verbal communication can only be adequately interpreted within the contexts in which it is used [26]. The study of Hunt [27] took place in the oncological setting, and describes different role formats used by symptom control nurses. In particular, attention was paid to how nurses actually behave in conveying feelings of friendliness and informality to seriously ill patients. Fosbinder [28] also investigated different roles in nursing. The study was performed in an acute care setting and the nursing roles were defined from the patient perspective. Mallett and A'Hern [29] describe the use of humour in nursing patients with renal failure. They combine ethnographic analysis with conversation analysis.

In the studies numbered 4–7, linguistic analysis techniques are performed. The tradition, in Table 2 referred to as discourse analysis, seeks to understand rules, mechanisms and structure of conversations. The data for this type of research are transcripts from naturally occurring conversation [25]. The Dennison study [31], carried out in the oncological setting, is particularly informative, giving insight in content and process of interaction preceding the first chemotherapy treatment.

The next three studies in Table 2 (8–10) use the grounded theory approach, embedded in the discipline of sociology. Using a procedure, referred to as constant comparison, the researcher analyses theoretical concepts in the data [34]. These studies clearly define how qualitative methods are used and may be useful in studies of nurse–patient communication [9,35,36].

The studies numbered 11–14 were all undertaken on an active treatment oncology ward, and used the method of qualitative ethology, which is embedded in the psychological tradition [8,37–39]. In these studies, behavioural components are observed over time in a natural context. In each study a specific aspect of behaviour is described, providing an insight into the way nurses become attached to patients, use patterns of touch and comforting strategies.

The study of Routasalo and Isola [40] was carried out using a phenomenological approach, meaning that the analysis is focused on the lived experience of individuals. Several types of touch are described. Because touch has the potential of conveying affection, care and comfort, it is an important aspect in building rapport and establishing a relationship.

The studies 16–21 are referred to as content analysis [41–47]. They do not fit explicitly in one of the disciplines mentioned earlier. In these studies, the researchers analyze the content of rather unstructured observational data to determine themes and patterns that are qualitative, rather than numerical in nature. In the context of this review, the study of Andersen and Adamsen [47] is particularly interesting. They discern seven communication categories employed by nurses who take care of patients undergoing brachytherapy (local implant for radiotherapeutic treatment): somatic communication, existential communication, small talk, technical talk, psychological conversation, social communication and observation procedures.

3.1.2. Quantitative research

In quantitative studies, events are studied that lend themselves to precise measurement and quantification. These studies are often preceded by other (qualitative) studies in which abstractions of natural concepts are defined operationally so that numerical measurement can be applied. Table 3 describes 23 studies using quantitative analysis, characterized by a structured method of observation. In these studies, general or specific communication behaviours are presented by numerical data, which are the input for statistical procedures.

[TABLE 3]

In general two basic observational approaches can be discerned, which are best considered as the opposite points of a continuum. Using a *molecular* approach, specified units of behaviour are observed such as a verbal utterance or a gesture. On the other hand, using a *molar* approach, large units of behaviour are the scope of observation, such as types of activities or alterations in consciousness [25].

An example of molecular coding is the Cancer Research Campaign Interview Rating Manual (CRCIRM) [48]. This instrument is applied, reviewed and adapted in several studies in oncology settings [16,17,49–54]. The method enables an utterance by utterance rating of transcribed nurse–patient encounters. According to some authors the need for transcription and the complexity of the coding system appear to be a time-consuming activity [50,56]. Consequently, efforts were made to develop a shorter rating scale, based upon the CRCIRM, and measuring only those behaviours that a validation study has shown to be effective for patient disclosure [17]. This Medical Interview Aural Rating Scale (MIARS) [57], that was applied in palliative care, is primarily directed at cues and concerns expressed by patients and tracks the professional responses to emotion [54,56].

The studies with the numbers 7–13 are all performed in elderly care. Armstrong-Esther et al. [58],Waters [59], Edberg et al. [60] and Nolan et al. [61] use molar observations, such as physical activity and non-interactive behaviour. While Davies [62], Salmon [63] and Thomas [64] use specifically defined verbal communication categories, such as explanation and jokes or puns.

The next three studies (rows 14–16) use adaptations of the Roter Interaction Analysis System (RIAS), originally designed for observation of medical consultations [65]. This molecular method has been applied in several areas in nursing such as communication in family planning, cancer nursing and elderly care [66–69]. In two studies, RIAS was extended with the observation of five nonverbal categories: patient-directed eye gaze, affirmative head nodding, smiling, forward leaning and affective touch [66,69].

The studies ofWilkinson et al. [10,70] investigate whether nurses pay attention to several key areas during the nursing assessment. In addition, the first study also investigates how nurses can facilitate patients talking about their problems and how nurses prevent patients from disclosure of their concerns. Both studies give insight in the content of the assessment interview and in the process of communication, especially in facilitative and blocking behaviour.

In the study of Moore and Schwartz [71], no predefined communication categories are coded, instead the amount of nurses' verbal and nonverbal behaviour is assessed, using an observation chart. This is comparable to the Holyoake study [72], although in this study attention was paid to the nature of the communication as well.

Leathart [73] studied nurses' ability to identify needs and problems of conscious intubated patients. A comparable study was applied by Hall [74], who examined the interactions between nurses and patients on ventilators. Both studies show that nurses spent only a small proportion of their time

talking to patients, while patients who have a problem to communicate verbally, in particular, are in need for individualized communication to prevent feelings of isolation and anxiety.

The last study presented in Table 3 is an evaluation study assessing the effects of a workshop on adherence promotion [75]. In the manual used in this study, four main skills which promote adherence are described. The level of each skill is assessed by quantifying predefined component behaviours.

3.2. Observational instruments applicable to sequential analysis of the nurse–patient interaction

To observe whether conversation partners align to each other and show responsivity we must have an insight in the flow of verbal and nonverbal behaviour. Through systematic observation we can assign behavioural codes to the stream of activities and get an insight in the sequential organization of the interaction [76]. An appraisal of the 44 studies revealed five instruments allowing such a systematic observation and offering data suitable for analyzing sequences in interaction. Four of the instruments use a molecular approach with an utterance by utterance analysis and one uses a molar approach directed at larger units of behaviour. These five instruments, presented in Table 4, are described in more detail.

[TABLE 4]

3.2.1. Cancer research campaign interview rating manual

The CRCIRM is devised by the CRC-funded Psychological Medicine Group in Manchester [48], to assess the impact of training programmes on communication skills [49,55]. In 1994 the rating manual has been adapted in order to decrease usage time, to improve the accuracy and to turn it into an accessible rating tool for tutors teaching communication skills [50]. In its present form, using the rating manual, transcripts of audiotaped conversation between healthcare workers and cancer patients are analyzed utterance by utterance, on form, function, content and structure. An utterance may be a complete sentence or a part of a sentence. Whenever there is a change of form or function, this is counted as a new utterance. The form of an utterance describes the grammatical mode. Possible forms are a statement, response and several types of questions. The function of an utterance defines the purpose of it. Possible codes are eliciting information, clarification, checking, acknowledgements and several ways of posing a hypothesis. The content ratings give an indication of the areas of information and discussion covered in the conversation, e.g. diagnosis, prognosis, social life, etc. Within the structure of an utterance characteristics are observed that give information on interaction features. For instance, the emotional level of a patient utterance is assessed, i.e. whether the nurse's response blocks or controls the patient's talks [48].

The CRCIRM is considered as a reliable and validated instrument [21] and is applied in several studies, also outside the UK. The research group of Razavi et al. [51,52] use a translation in French. Moreover, Butow et al. [77] in Australia built on CRCIRM in their study of physician–patient communication in cancer care. Coding with CRCIRM gives a broad insight into content and structure of an encounter. The data are quantifiable and open to mathematical interpretation. This method pays implicit attention to communication sequences, e.g. the relevance of an utterance is assessed and whether it is related to a patient's cue. Moreover, sequences can be studied between the professionals' blocking or facilitating behaviours and disclosure in the patient. The reported studies mainly describe frequency-based data analyses, which allow only limited conclusions about the interaction process during the nursing encounter. Nevertheless, the observation method is suitable for analyzing sequences, because by transcription a continuous real-time measurement is applied, in which interaction sequences can be traced, at least in a qualitative way.

Applying the instrument is time-consuming. Firstly, transcription is required and then it takes 2 h to rate a 15 min interview [50,56]. In addition, coding each utterance in several modes will lead to a very large complicated data set. Computer software may ease coding procedures, and will provide the observational data in an accessible way. Up till now, research papers on the CRCIRM do not report on computer-assisted coding methods.

3.2.2. Medical Interview Aural Rating Scale

The MIARS was developed to assess whether nurses use adequate communication skills during encounters with cancer patients [57]. The instrument, which builds on the CRCIRM, is especially directed at providers' communication related to patient's disclosure. The categories are therefore not exhaustive and not mutually exclusive. The basic unit rated is each turn of speech, for both the nurse and the patient [56].

Using the rating scale, several types of interviewers' behaviours are assessed, that all had been shown to have a significant effect on patient disclosure, such as open questions, summary or problem-focused behaviour. On the side of the patient two types of disclosure are rated: cues and concerns. Five interviewers' cue responses are also assessed, such as exploration of the cue or use of distancing strategies. The instrument has recently been developed and therefore applied on a limited basis in the research practice. Nevertheless, the first application in a study of the palliative setting has shown that the instrument is reliable [57]. Comparable to the CRCIRM system the observation method is suitable for sequential analysis, because continuous real-time measurement is employed.

3.2.3. Roter interaction analysis system

The RIAS was originally designed to assess physician– patient communication [65]; however, several adaptations have been made to use it in nursing practice. Apart from applications in elderly nursing [13,66,78] and family planning sessions [67,68], it was also used to rate assessment interviews of nurses with admitted cancer patients [14]. The scheme uses a molecular approach, coding verbal utterances. An utterance is defined as the smallest distinguishable speech segment to which a coder can assign a classification, so one speaking turn can include several utterances. All utterances are assigned to mutual exclusive and exhaustive categories. In its original form there are 34 verbal categories, discernible in instrumental and affective verbal behaviours. A general assessment of the atmosphere during the interaction is reflected in a rating of general affect dimensions, including anger, nervousness, assertiveness, interest, friendliness and involvement. In some of the application fields the observation is extended to nonverbal behaviour [13,14].

Coders apply RIAS directly from video or audiotape, without transcription, using a computer system. RIAS coding is easily learned and after training experienced coders can reach speed in coding, meaning that an uncomplicated coding task requires 150% real-time interaction [79]. From coding, quantitative indexes of the communication categories can be computed and used in statistical models, either to describe content and structure of the communication or as a dependent variable, e.g. to test the effectiveness of an intervention [14,69] or as a predictor of outcomes of interest, such as patient satisfaction, information recall, etc. [80]. Interrater reliability and validity measures in the oncological setting have been reported [69,81].

A drawback of RIAS is that it provides only frequency data, and these allow limited conclusions on the interactive nature of the communication. In one of the reported studies authors pay attention to a two-way interaction process, for instance by calculating the total amount of talk by participants and ratios of provider to patient talk, as an indicator of verbal dominance [66]. Kim et al. made a start to adapt RIAS for sequential analysis [68]. She developed a separate coding guide to analyze pairs of utterances, aiming at exploring provider's response to client's efforts to play an active role during the encounter. The method needs further elaboration. Communication with the author (D.L. Roter) demonstrated that a computerized RIAS coding program has been developed, in which sequential information is stored, suitable for giving feedback on interaction sequences for training purposes. Systematic sequential analyses for research purposes have not been reported so far.

Dutch researchers in the field of physician–patient communication report on data entry, using 'The observer' [82]. This system allows to perform lag sequential analysis. This type of analysis [76] examines how often certain events, for instance 'patient disclosure', are preceded or followed by other events, such as 'provider's expressions of empathy'. 'The observer' has been reported as compatible with the recently developed advanced computer program 'Theme', especially developed for pattern recognition in human interactions [83]. Further study is needed to determine whether this program could be useful in analyzing sequences of nurse–patient interaction.

3.2.4. Measuring adherence promotion counseling skills

To evaluate a workshop for improving counseling skills of healthcare professionals, Schlundt et al. [75] developed a coding system to assess skills from videotaped provider–patient encounters. In the system four categories of adherence skills were defined: relationship building, interviewing, problem diagnosis and behavioural intervention. Within each category, major skills are defined, each further divided into component skills, resulting in a molecular approach, with a list of specific, observable and operationally defined behaviours. For instance, within the relationship building category, a major skill was demonstrating respect for the patient. A list of positive behaviours (greeting, politeness) and negative behaviours (ignoring patient, time pressure, inappropriate self-disclosure) was defined. The manual that was obtained from the authors showed that the skills and observable behaviours were clearly identified and specified. The level of each skill was quantified using judgments of presence or absence, ratings of appropriateness or frequency counts, resulting in numerical scores. No special attention was paid to interaction sequences. However, if speaking turns are coded continuously along a time trace, the system could be suitable for this.

3.2.5. Coverage of key areas of nursing assessment

Wilkinson [10] developed a molar form of assessing communication of nurses and patients during an assessment interview. Actually, they discern several areas in the nursing encounter, that all need to be directed, and in that way constitute a global sequence in the interaction: the introduction of the assessment, patient's understanding of admission, patient's awareness of diagnosis, history of present illness, history of previous illness, physical assessment, social assessment, psychological assessment and the closure of nursing assessment. The instrument has proved to be reliable, but validity has not been reported [10,70]. The system proved to be an appropriate means to analyze a series of meaningful stages subsequently discussed during the assessment interview. Such a global sequence could not be distinguished by analyzing the frequency coding of small speech units. A limitation is that no insight is provided into the way nurses' communication is closely attuned to the individual. Also information on involvement and attitude of nurses is limited because the focus is only on coverage of key areas. A key area may be adequately covered, while the nurse is distant and ignores patient emotions.

3.3. Observation instruments applicable to research into nurse–patient communication in oncology

As was shown in Table 2, a lot of researchers have made use of qualitative studies to study nurse–patient communication in daily practice. These studies give valuable information on observational research in general, procedures concerning informed consent and observation arrangements in nursing practice. For instance, Latter et al.'s study on medical education (Table 2, row 19) gives an example how to include both patient and nurse characteristics and contextual factors in the study of interaction [45]. The studies conducted in the different oncological settings in particular provide relevant background information for designing studies in cancer nursing (see right-most column in Table 2). The Dennison study gives an insight in content and process of interaction guiding patients during the first chemotherapy session [31]. Several studies are helpful in developing content categories for observational instruments because they describe communication aspects in detail. The study by Hunt, for example, describes different role formats used by symptom control nurses [27]. More specifically, an insight is provided in how nurses communicate to convey a friendly and informal attitude, both verbally and nonverbally. Jarrett and Payne describe how 'optimistic communication' cannot simply be considered as 'chatty behaviour' but may have a function of 'constructive realism', which seems to be very useful in cancer care [33]. Studies by Bottorff et al. are very informative in describing how nurses become attached to patients and give comfort [37–39]. The studies of touch [8,40] show how important touch is in building a relationship and providing care and comfort. Therefore, this is an aspect of communication that should be considered in the study of nurse–patient interaction in oncology. Finally, the study by Andersen and Adamsen, who use a partly quantitative approach, offers suggestions for instrument development, concerning different types of communication during the administration of a radiation therapy [47].

As regards the quantitative studies (Table 3), it may be concluded that some of them are performed in a context that differs strongly from oncology nursing. For instance, the studies in elderly care [59,61–63] or in the intensive care [73,74] do not offer specific clues for instrument development in

oncology care. Studies directed at the occurrence of verbal and nonverbal behaviour, rather than the content of communication [71,72], neither offer guidelines for instrument development in cancer nursing (right-most column in Table 3). The study of Schlundt et al. [75], though not applied in oncology, could be valuable. Although this manual was primarily directed at skills in promoting adherence, most of the behaviours defined, such as empathy, negotiating and social support, are important in cancer care.

The CRCIRM [48] has been specially developed for the oncological setting, resulting in measurement of distinctive and special features of the interaction in this area. The method has been utilized in several studies and the scheme has proved to be sensitive to changes in communication and patient's disclosure [21]. Because the use of CRCIRM is time-consuming, depending on the research question, it may be worth using the MIARS, which is derived from CRCIRM, but less extensive.

Wilkinson et al.'s instrument [70] has also been developed in the oncological setting. This instrument is especially valuable when describing a series of topics discussed during a nursing encounter.

The RIAS, though not specifically developed for the oncological setting, has proved to be suitable for describing interactions in cancer care [14,81]. However, borrowing instruments developed for interaction in a medical context has constraints. Medicine differs from nursing in important ways [84]. Communication in doctor–patient consultations is mainly characterized by diagnosing and medical problem solving. Socio-emotional communication, although considered as important, has a subordinate role and is mainly used to facilitate the problem solving process. In nursing, on the contrary, the process of care is an important aspect. Within the caring relationship problem solving is closely intertwined with the provision of psycho-social support, in the broadest sense [85].

4. DISCUSSION AND CONCLUSION

This article has presented and discussed observation instruments currently used in nursing research. Special attention was paid to applicability of these instruments to sequential analysis and their suitability for the oncological setting. The overview of studies demonstrates a variety of methods assessing nurse–patient communication. Nearly half of the studies in review used a qualitative approach. Especially, because these studies are directed at the interaction as it occurs in its daily context, they seem to be extremely profitable for understanding communication within a specific environment. Consequently, the studies in oncology nursing provide relevant background information for problem definition and designing research that is more quantitative in nature.

4.1. Discussion

The studies using quantitative techniques were often used to evaluate effects of training. Several observation systems appeared to be suitable for analyzing sequences in the oncological setting. RIAS [65] and CRCIRM [48] are both sophisticated systems and allow for rating patients' and nurses' communication. Especially CRCIRM, that has its roots in oncological care, covers a wide scope of the interaction, providing insight in both function form and content of the conversation. However, the need for transcription and the complexity of the coding system can be considered as serious drawbacks. In that respect, MIARS could offer a better choice, measuring only those behaviours that a validation study has shown to be significantly related to patient's disclosure of concerns [57]. Both CRCIRM and MIARS lack a direct assessment of nonverbal behaviour, meaning that nonverbal cues of a patient and cues missed by the nurse are not identified. As socio-emotional communication, in particular, is transferred in a nonverbal way, adaptations of these systems for observing nonverbal communication should be studied.

In general, observational research is a laborious and time-consuming matter. Especially when analyzing larger sample sizes, efforts must be taken to use the selected methods more efficiently. Several possibilities have potential in this regard. One could use a sample procedure by which only a part of an encounter is coded. For example, observing the first 10 min of an encounter. Doing this, one should empirically verify whether the segment of the interaction is comparable with the speech pattern of the entire interaction [12,78,86]. Another possibility is to identify specific events, based on operationally defined research questions. Such a specific event, for instance a topic change [87] including several conversational turns before and after, could be analyzed in detail, and may answer questions such as, who initiates a topic change and what may prompt a nurse to change the topic? Finally, a combination of instruments could be considered. For instance, the use of a molar system

[70] to identify a specific phase of the admission interview, such as talking about patient's treatment, and subsequently, apply a molecular observation for an analysis of targeting behaviours or sequences during this specific phase. A prerequisite for efficiently selecting and combining instruments for assessing interaction is a well defined and specific research question.

4.2. Practice implications and future research

Communication is essential for the provision of tailored and sensitive nursing care. Research can contribute to knowledge in this area, and as such serve as a basis for nurses' education.

However, simply giving nurses new protocols to follow is not enough to change patterns of interaction. Educational programmes should be evidence-based and pay attention to both verbal and nonverbal communication in realistic situations. Good measurement tools are needed to detect inadequate and adequate communication patterns.

Evaluating the preceding review we may conclude that there are several observation methods that are more or less suitable for research into nurse–patient communication in cancer care. A molecular method will not always be the most efficient one. After all, reducing the observations to concrete and specific elements may risk losing sight of the activities that are at the heart of the interaction. Our results show that in some instances a combination of molar and molecular instruments would be a better choice and a more efficient one, while in other situations a molecular approach in combination with qualitative methods assessing the context and atmosphere is preferable.

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TABLES

Table 1
The numeric results of the literature search

Source	Search terms	Hits	Selected for retrieval
CINAHL	(a) nurse–patient relationship/nurse–patient communication/nurse–patient interaction (1)	1068	252[a]
	(b) 1 AND cancer nursing/oncology nursing	171	128
	(c) 1 AND observational study/video/audio	142	89
	(d) 1 AND assessment instruments/observational instruments	80	39
PubMed	nurs[a] AND communicat[a] AND (video OR audio)	122	34[b]
Snowball sampling			8
Correspondence with specialists			3
	Total		553

[a] Retrieved in a second appraisal, after the narrowed approaches (b), (c) and (d).
[b] Not duplicated in CINAHL.

Table 2
Qualitative studies in nursing practice

	Source	Setting and sample	Study focus	Data collection	Research tradition	Interaction partners considered	Cues for instrument development in oncology
1	[27]	Palliative home care; 5 nurses; 54 patients	Nurse's role in symptom control	Audio recordings of naturally occurring nurse–patient conversations	Ethnographic analysis	Both	Yes
2	[28]	Acute care in a private hospital; 12 nurses; 40 patients; 245 observations	Interpersonal competence among nurses from the perspectives patients	Participant observation, completed with patient interviews	Ethnographic analysis	Both	No
3	[29]	Specialized unit for haemodialyse; 5 patients and nurses involved	Humour within nurse–patient communication: frequency, distribution and use of humour	Videotaped nurse–patient interactions, with a hand-held camera	Ethnographic analysis; conversation analysis	Mainly nurse	No
4	[30]	Acute care hospital unit; 20 nurses; 20 elderly patients	Speech events during admission interviews, focusing at acoustics, phonology, syntax, lexicon, conceptions, intent, credence	Audio recordings of admission interviews in the natural setting	Discourse analysis	Both	No
5	[31]	Specialized gynaecological oncology unit; 8 nurses each caring for a patient	Communication that takes place between nurses and patients whilst cancer chemotherapy is administered	Audiotapes of nurse–patient conversations in the natural setting	Discourse analysis	Both	Yes
6	[32]	Hospital trauma rooms; 67 patients and nurses involved	Language of trauma centre nurses to distressed patients, special focus on linguistic features and intonation patterns of comfort talk	85 h of real live nurse–patient interactions were videotaped	Analysis of speech	Mainly nurse	No
7	[33]	Outpatient department for radiotherapy and chemotherapy; 8 nurses; 9 patients	Themes in communication: relationship building; helping the patients, knowledge, optimism	266 min of audio-recorded nurse–patient conversations, supplemented with semi-participant observation and patient interviews	Conversation analysis	Both	Yes
8	[9]	Site in a small hospital for elderly patients; 9 nurses; 24 patients	Nurses' power in language: persuasion and controlling the agenda	37.5 h of participant observation; recorded verbatim and field notes	Grounded theory approach	Nurse	No
9	[35]	High dependency unit; 5-day shifts in a 2-bed HDU	Characteristics of natural occurring interactions in a high dependency unit	Videotape recordings of natural occurring interactions, supplemented with participant observation	Grounded theory approach	Both	No
10	[36]	Special care nurseries for premature infants; 20 nurses; 31 mothers of premature infants	The use of chat and social talk as a clinical tool applied to facilitate parents in neonatal caring	Audio recordings of nurse–patient interactions, supplemented with interviews and field notes	Grounded theory approach	Mainly nurse	No
11	[8]	Active treatment oncology ward; 32 nurses; 8 patients	Different types of touch: comforting touch, connecting touch, working touch, orienting touch and social touch	Videotaped nurse–patient interactions, supported with interviews with patient and nurses	Qualitative ethology	Mainly nurse	Yes
12	[37]	Active treatment oncology ward; 32 nurses; 8 patients; 1085 interaction units	Types of nursing behaviour in different contexts of care	Videotaped nurse–patient interactions, supported with audiotaped interviews with patient and nurses	Qualitative ethology	Mainly nurse	Yes
13	[38]	Active treatment oncology ward; 32 nurses; 8 patients; 116 selected interactions	Verbal and nonverbal behaviours of patient and nurses, with a special focus on transitions in the interaction	Real live videotaped nurse–patient interactions, supplemented with field notes	Qualitative ethology	Mainly nurse	Yes
14	[39]	Active treatment cancer ward; 32 nurses; 8 patients, each videotaped for 72 h	Comforting behaviours of nurses: physical comfort; providing information; supportive statements proximity; touch	Real live videotaped nurse–patient interactions, supplemented with field notes	Qualitative ethology	Mainly nurse	Yes
15	[40]	Ward in long-term care institutions; 10 care situations	Frequency and types of touch	Video recordings of real live nursing care situations	Phenomenological approach	Both	Yes
16	[41]	Two long-term wards in different nursing homes; 10 nurses; 10 patients	The effect of training promoting integrity care on patterns of interaction	Video-recorded real live morning care sessions	Qualitative content analysis, events analysis	Both	No
17	[42]	Adult intensive care unit in a general hospital; 16 nurses	Quantity and content of verbal communication in critical care nursing	Non-participant observation of 4 h episodes, each utterance was written down	Qualitative content analysis, time analysis	Mainly nurse	No
18	[43,44]	Psychiatric ward in a university hospital; 10 nursing encounters	Patient initiatives during assessment and planning of care	Videotaped nursing assessments and planning sessions, supported with interviews with nurses	Qualitative content analysis	Both	No
19	[45]	Seven clinical areas within an NHS; 85 nurse–patient interactions	Communication styles, education skills and pharmacological knowledge of nurses giving medical education	Audio recordings and observations of nurse–patient interactions, supplemented with post-interaction interviews	Qualitative content analysis	Both	Yes
20	[46]	Two home care agencies; 6 nurses; 25 patients	Relational and content aspects of compliance during nursing home visits in the community	Field notes during participant observation, supported with interviews	Content analysis, analysis of relational dimension	Both	Yes
21	[47]	Radiation therapy; 17 nurses; 5 patients	Interaction and communication during the process of internal radiation in isolation rooms	Unmanned video recordings of real live interaction in patient rooms	Content analysis, time analysis	Mainly nurse	Yes

Table 3
Quantitative studies in nursing practice

	Source	Setting and sample	Study focus	Data collection	Coding system	Interaction partners considered	Cues for instrument development in oncology
1	[49]	Workshops in cancer care; 218 healthcare professionals	The effects of a training programme in terms of skills improvement	Transcripts of audiotaped interviews with simulated patients	CRCIRM; molecular coding of individual utterances, providing a rating of form, function, content and structure	Both	Yes
2	[50]	Residential workshops in cancer care; 5 workshops, each with 10–15 attendants	The effects of a training programme in terms of skills improvement	Transcripts of audiotaped interviews with simulated patients	Adaptation of CRCIRM; molecular coding of utterances providing a rating of form, function, content, relevance, psychological level, cue-related blocking behaviour, control	Mainly healthcare worker	Yes
3	[52]	Workshops in cancer care; 25 healthcare professionals	The effects of a training programme, with standardized role-plays, and different emotional scenarios	Transcriptions of tape-recorded interviews	French translation of CRCIRM; molecular coding of utterances providing a rating of form, function and structure	Mainly healthcare provider	Yes
4	[53]	Residential workshop in cancer care; 16 healthcare professionals	The effects of a workshop in terms of skills improvement	Audiotaped interviews	Modified-scale CRCIRM; combining molar and molecular coding on structure, skills, style and outcome of the interview	Mainly nurse	Yes
5	[54]	Two hospices; 33 nurses	The effects of training communication skills in terms of clinical outcome, i.e. eliciting patients' concerns	Tape-recorded assessment interviews of nurses with patients, supported with patient interviews	Using the concern checklist it was assessed: which concerns patients disclosed and what concerns nurses listed	Both	Yes
6	[56]	Hospital palliative care, community palliative care; 61 clinical nurse specialists; 449 patients	The effect of clinical supervision on transfer of communication skills after training	Direct coding of audiotaped nurse–patient interactions	Rated behaviours: interviewers' skills, patient disclosure, interviewer's cue response	Both	Yes
7	[58]	Acute medical geriatric wards; 24 patients	Activity level of elderly patients	30 min periods of non-participant direct observations, using a microcomputer	Molar coding of 16 behavioural categories, such as interaction with others, posture, non-interactive behaviour	Patient	No
8	[59]	Two rehabilitation wards in a geriatric hospital; 32 patients	Styles of staff–patient interactions during morning routines, and the effects on elderly patients in rehabilitation care	Non-participant structured observations during morning care	Godlove schedule; molar coding of styles of nurse–patient interactions: physical activity, verbal guidance, etc.	Nurse	No
9	[60]	Two wards in a psycho-geriatric clinic; 22 nurses; 39 patients	The effects of an intervention on quality of nurse–patient cooperation	Non-participatory observation of morning care, supplemented with field notes	Molar coding of 10 cooperation styles	Both	No
10	[61]	Two continuing care units; 24 staff; 24 patients	Interaction level of elderly patients	Time sampling-based field observation	Molar coding of activity categories, such as informal activity, asleep, organized activity	Mainly patient	No
11	[62]	Geriatric ward; small sample of staff; representative sample of patients; 24 taped 2 h periods	Verbal strategies of qualified and unqualified nursing personnel	Tape-recorded interactions, using a walkman tape recorder	Molecular coding of 15 verbal communication categories: explanation, offering choice, jokes and puns	Nurse	No
12	[63]	Two geriatric wards in a psychiatric unit; 27 nurses; 47 patients	Improving nurse–patient interaction by establishing formal activity periods	Non-participant observation using time sampling	Molecular coding of 16 behavioural categories, such as informing, questions, general conversation	Nurse	No
13	[64]	Nine hospital elderly care wards; 72 nurses	The influence of ward organization on nurse–patient interaction	Non-participant observation using computerized event recording	Categories of verbal interactions: questions, commands, explanations	Nurse	No
14	[66]	Home care; home for the elderly; 47 nurses; 241 patients	The effects of communication training based on video interaction analysis	Observation of real live videotaped interaction	RIAS adaptation for elderly nursing; molecular coding of utterances; 11 verbal affective categories and 13 verbal instrumental categories; 5 nonverbal categories; 7 global affect ratings	Mainly nurse	Yes
15	[67,68]	25 family planning services; 61 healthcare providers (most of the nurses); 178 counseling sessions	Patient's participation in family planning consultations	Transcriptions of audiotaped consultations	RIAS adaptation for family planning; molecular coding of utterances, assessing interaction style, balance of talk, clients' active communication, providers' promoting and rewarding communication	Both	Yes
16	[14,69]	Oncology wards in three general hospitals; 50 nurses; 50 simulated patients; 134 real patients	The effects of training communication skills in terms of communication competence and performance	Videotaped nurse–simulated patient interactions and videotaped real live interactions	RIAS adaptation for cancer nursing; utterance by utterance coding of 13 verbal affective categories and 18 verbal instrumental categories; 5 nonverbal categories	Mainly nurse	Yes
17	[10]	Six wards in two general hospitals; 54 nurses; 162 patients	The extent to which nurses facilitate or block patients in oncology nursing care	Transcriptions of audiotaped nursing histories	14 facilitating behaviours, such as open questions, empathy; 13 blocking behaviours, such as inappropriate advice, defending	Mainly nurse	Yes
18	[70]	Several areas of oncology nursing; 110 nurses; 290 nursing assessments	The effect of a training course on nurses' communication skills and confidence in difficult situations	Audiotaped nursing assessments	Molar coding of key areas in nursing assessment, such as introduction; understanding of admission; awareness of diagnosis; history present illness	Nurse	Yes
19	[71]	Emergency and trauma center; 40 nurse–patient interactions	The amount of verbal and nonverbal communication occurring between nurses and trauma victims	Direct observation of videotaped verbal and nonverbal interaction	With the Moore–Schwartz data collection tool, the amount of verbal and nonverbal communication with patients and family members is rated	Nurse	No
20	[72]	Adolescent unit for mentally ill patients; 15 nurses; 743 interactions	Nurses' interactions with mentally ill young people	4 h periods of participant observation by a nurse researcher	Using a coding grid the interaction was assessed on location, initiation and nature	Mainly nurse	No
21	[73]	Intensive therapy unit; 8 nurses	The state of communication between intubated patients and nurses	2 h periods of non-participant observation; observational data were supplemented with structured interviews with nurses	Ashworth's observation chart, coding the length of interaction, initiator, nurses verbal content, touch, eye contact, patients' verbal content, means of reply of the patient	Both	No
22	[74]	Critical care unit; 30 nurses	Effectiveness of communication between nurses and ventilated patients	Non-participant 30 min interval observation supplemented with nurses' questionnaires	Molar coding of actions and reactions of nurses, related to the perceived level of consciousness of ventilated patients	Mainly nurse	No
23	[75]	Six workshops of adherence promotion; 60 healthcare professionals; 120 interactions	The effect of a training programme on adherence promotion skills	Observation of videotaped interactions between healthcare professionals and standardized patients	Coding system "adherence promotion counseling skills", rating four skills categories: relation building; interviewing skills; problem identification; behavioural interventions	Mainly healthcare provider	Yes

Table 4
Descriptive data for instruments using quantitative data and offering starting points for sequential analysis

Instrument	Areas of application	Observational strategies	Variables	Reliability/validity	Pros and cons
Cancer Research Campaign Interview Rating Manual [48]	Effectiveness of workshops communication skills [17,50,54]; effectiveness of training for hospice nurses [16,54]; workshop evaluation [49]; effectiveness of workshops for healthcare workers in oncology [51,52]	Interviews with (simulated) patients were tape-recorded and transcribed to permit detailed assessment by trained raters using an utterance by utterance analysis	Utterances were rated on the following modalities:	IRR	(+) The instrument is applied in oncological settings, and therefore may offer clues for other studies into nurse–patient communication in cancer care
			Form: grammatical style, e.g. closed question	Form: 91%	(+) The instrument has shown to be reliable and is applied in several studies
			Function: purpose, e.g. eliciting psychological information	Function: 81%	(+) Some of the studies mentioned pay attention to interactional sequences: For instance, what interviewers' behaviours promote and which inhibit patients' disclosure?
			Content: what is being discussed, e.g. disease, social circumstances	Content: 87%	(+) By testing clearly defined hypotheses, the study contributes towards theory development on communication in healthcare
			Relevance	Emotional level: 82%	(+) Statistical procedures are clearly defined
			Level of psychological depth Whether or not the utterance of the interviewer is in response to a cue of the patient Using blocking strategies to avoid sensitive cues Control	Validity could not be retrieved	(+) The manual is available from the first author
Medical Interview Aural Rating Scale [57]	Nurses' communication skills in palliative care [56]	Audiotapes are rated utterance by utterance	Interviewer's skills: open questions, screening questions, negotiation, summary, psychological or cognitive or psychiatric or problem-focused behaviour	Reliability adequate	(+) The study is performed in an oncological setting, and therefore may offer clues for other studies into nurse–patient communication in cancer care
			Patients' emotional disclosure in terms of cues and concerns Interviewers cues response	Validity proved	(+) The instrument (partly diverted from CRCIRM) has shown to be reliable
Roter Interaction Analysis System [65]	Elderly nursing [12,13,69,78]	Coding nurses' and patients' verbal and nonverbal behaviour direct from videotapes [13,14]	11–13 verbal affective categories, such as showing concern, showing empathy	IRR—verbal categories: 0.74–0.81 (Cohen's κ)	(+) The instrument was suitable to assess both verbal and nonverbal communication in nurse–patient encounters
	Cancer nursing [14]	Transcripts of audiotapes, while translating local language in English [67,68]	13–19 verbal instrumental categories, such as giving information, posing open questions	IRR—nonverbal categories: 0.70–0.98 (Pearson's R)	(+) The instrument enabled to detect a variety in verbal communication behaviours which were considered as relevant for the nursing process
	Family Planning sessions [67,68]		Five nonverbal categories relevant for rapport building: eye-gaze direction, affirmative head nodding; smiling, leaning forward, touch	Convergent validity reported	(+) The instrument was sensitive to different types of nursing encounters
			Seven global affect ratings, coded on 6-point rating scales, and reflecting a general impression of nurse–patient interaction, such as nervousness, assertiveness, involvement	Content validity: the domain of verbal communication in nursing care is properly covered	(–) Because RIAS has been developed for interaction in a medical context, it has imitations for nursing practice
				Conceptual validity: arguable	(–) By using frequency-based data only limited conclusions can be drawn about the sequential process during the nursing encounter (–) Using frequency counts does not give an insight in successful and unsuccessful communication, because there is no information about how the communication was performed (–) Because no context information is gathered nonverbal behaviours cannot be interpreted properly

Observation of adherence promotion counseling skills [75]	Evaluation of an adherence promotion training workshop for healthcare providers [75]	Videotaped interactions between healthcare professionals and standardized patients were code by trained raters	Relation building skills, such as respect for the patient, negotiation, empathy	IRR	(+) The manual skills and behaviours are clearly identified, e.g. concerning respect both positive and negative behaviours are specified
			Interviewing skills, active listening, question style	0.48–0.76 (mean: 63) exact agreement	(+) Offers cues for instrument development
			Problem identification	0.82–0.95 (0.87) when reliability was defined as exact agreement or not more than one-point disagreement	(+) Manual is available at the author
			Behavioural interventions, such as objectives stated, referrals		(−) The instrument is developed aiming at measuring skills to promote adherence. Limited attention is paid to sharing concerns and emotional support
				Validity could not be retrieved	(−) The level of each skill was quantified using simple judgments of presence or absence, rating of appropriateness or frequency counts. Information on context and sequences is retrieved in a limited way
Coverage of key areas of nursing assessment [10,70]	Nurse assessment interviews on an oncology ward [10,70]	Audiotapes of nursing assessments were rated regarding coverage of nine key areas, each scored 0–3 to the extent of coverage	Nine key areas of nursing assessment were rated	IRR: 0.88 (Cohen's κ)	(+) Assessing nine key areas of nursing assessment gives adequately insight in the content and nature of this type of nursing encounters
			Introduction	Validity could not be retrieved	(−) No insight is provided into context factors
			Patient's understanding of admission		(−) No insight is provided into the way nurses' communication is closely attuned to the individual
			Patient's awareness of diagnosis		(−) Insight into involvement and attitude of nurses is limited because the focus is only on coverage of key areas. A key area may be properly covered, while the nurse is distantly
			History of present illness		
			History of previous illness		
			Physical assessment		
			Social assessment		
			Psychological assessment		
			Closure of nursing assessment		