How can communication by oncologists enhance patients’ trust? An experimental study


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Key words: communication, physician–patient relations, trust, videotaped consultations

Background: Cancer patients need to trust their oncologist to embark in the process of oncologic treatment. Yet, it is unclear how oncologist communication contributes to such trust. The aim of this study was to investigate the effect of three elements of oncologists’ communication on cancer patients’ trust: conferring competence, honesty, and caring.

Methods: Eight videotaped consultations, ‘vignettes’, were created, reflecting an encounter between an oncologist and a patient with colorectal cancer. All vignettes were identical, except for small variations in the oncologist’s verbal communication. Cancer patients (n = 345) were randomly assigned to viewing two vignettes, asked to identify with the patient and afterwards to rate their trust in the observed oncologist. The effects of competence, honesty, and caring on trust were established with multilevel analysis.

Results: Oncologist’s enhanced expression of competence (β = 0.17, 95% CI 0.08, 0.27; P < 0.001), honesty (β = 0.30, 95% CI 0.20, 0.40; P < 0.001), as well as caring (β = 0.36, 95% CI 0.26, 0.46; P < 0.001) resulted in significantly increased trust. Communication of honesty and caring also increased patients’ expectation of operation success and reported willingness to recommend the oncologist.

Conclusion(s): As hypothesized, oncologists can influence their patients’ trust by enhanced conveyance of their level of competence, honesty, and caring. Caring behavior has the strongest impact on trust. These findings can be translated directly into daily clinical practice as well as in communication skills training.

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introduction

Communication is a prerequisite for treatment of oncologic patients. For communication to be effective, it should evoke patients’ trust [1]. Trust has been defined as the optimistic acceptance of a vulnerable situation in which the patients believes the physician cares for his or her best interests [2]. Trust was found to lead to improved information exchange and decision-making, better adherence to medical advice, less second opinion seeking, and higher satisfaction with the physician [3].

To optimize cancer patients’ trust, we need to know how it is established. In previous studies, trust was stronger among older, higher educated, and non-minority cancer patients [3]. These characteristics, however, cannot be influenced to improve patients’ trust levels. Care providers’ communication, on the other hand, can be modified [4]. Insight into the elements of oncologist communication that affect trust is therefore of great relevance. A recent review [3] and qualitative study [5] indicated that cancer patients might trust oncologists whom they perceive as medically competent, honest in their information provision, and communicating in a patient-centered way.

Yet, the available evidence so far suffers from significant shortcomings. Trust was not the primary subject of interest in most studies and was often assessed using unvalidated measures. Moreover, all published studies employed correlational designs, prohibiting conclusions about cause and effect. Finally, in these studies, no distinction was made between immediate trust, developing within the very first consultation, and longer-term ‘relational’ trust which evolves more slowly, after repeated interaction [5]. As oncologic care is increasingly multidisciplinarily organized, involving short-term relations with multiple caregivers [6], immediate trust is gaining increasing importance. Therefore, we experimentally investigated the hypothesized effect of oncologists’ enhanced communication of competence, honesty, and caring on stronger immediate trust among cancer patients.

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methods

design

Video vignettes, i.e. videotaped medical consultations based on scripts, were created. These enable variation in isolated elements of communication, while the remainder of the conversation is kept constant. This is unfeasible in clinical practice and unethical: manipulating behavior in real clinical practice might expose cancer patients to inferior communication [7, 8]. Video vignettes form an ethically acceptable and feasible alternative, with findings being translatable to clinical practice [9].

After composing a basic vignette, multiple variations were created. The three relevant elements of oncologist communication were systematically varied on two levels (standard versus enhanced): competence, honesty, and caring. These variations were combined in an experimental $2 \times 2 \times 2$ factorial design resulting in eight different video vignettes (Figure 1). To increase statistical power, cancer patients were randomly allocated to view and evaluate two different vignettes. Vignette version and order were balanced. Patients were blinded to video conditions. The primary outcome was patients’ trust in the observed oncologist. Secondary outcomes were expectation of operation success and likelihood to recommend the oncologist to others. The hospital’s Medical Ethics Committee provided an exemption for the study to seek formal approval.

subjects and procedure

Patients ($\geq 18$ years), presently or previously suffering from cancer, were recruited through cancer patient organizations and four outpatient clinics of one academic and one non-academic, regional, hospital. Members of patient organizations were recruited through printed and website announcements, whereas follow-up clinic patients received an invitation letter from their surgeon, radiotherapy, or medical oncologist.

In an individual appointment, patients first filled in a baseline questionnaire (T0). Next, they were shown two videos, separated by a 10-min distraction task. Patients were invited to identify with the observed patient. Each video viewing was followed by the completion of a questionnaire (T1 and T2) assessing their evaluation of the observed oncologist.

development of experimental conditions

A basic script was created, displaying a male surgeon and a colon cancer patient discussing upcoming surgery (for a more elaborate description of the video vignettes development, see supplementary Appendix A, available at Annals of Oncology online). The script was based on six audio-recorded consultations of three oncologic surgeons and their patients. Next, variations in the basic script were created in competence, honesty, and caring. Therefore, two or three verbal communication alterations were added to the basic version (Box 1 and supplementary Appendix A, available at Annals of Oncology online).

Trained actors played the roles of (male) oncologist and (male and female) patient. Pilot-testing of the scripts indicated that the variations were identifiable and that the scripts were perceived as realistic (supplementary Appendix A, available at Annals of Oncology online). Next, the scripts were video-recorded in a medical consultation room setting. We used the patient’s

Box 1. Overview of script additions for manipulations for three elements

Competence:
1. The scientific literature clearly demonstrates that [this operation] offers the best chance at survival. I recently attended a scientific conference, where it was confirmed once more that this operation is the best possible treatment.
2. We perform [this surgery] very often. In our center we all have our specialization, so that we perform certain procedures much more often to become even more skilled in them. So I perform this operation a lot.

Honesty:
1. [The risk of a colostomy] is something I really want to discuss with you, even though the chances of it are slight. Because I believe that you as a patient have the right to be informed about such small risks, to avoid that you will be taken unaware by this afterwards.
2. All these [complications] will not necessarily occur, but I do want to discuss them with you. Because, even though we do our very best, it remains hard to predict: we can never rule out that you will experience complications. This way at least you are well informed.
3. I should add that we can never be 100% sure [that the cancer will be completely removed]. So I can never give you an absolute guarantee. There is always a slight chance that we run into an abnormality during surgery. But for now all signs suggest that you will be cancer-free after the operation.

Caring:
1. Oncologist: Were you very worried about it [the result of the scan]?
   Patient: Yes, in a way… After all, it is your biggest fear in such a moment. But it seems to have turned out well, hasn’t it?
   Oncologist: Yes, it seems so. So that is good, and at least one thing we don’t have to worry about anymore.
2. Oncologist: Do you particularly dread the thought of a colostomy?
   Patient: Yes, it seems horrible, this bag attached to your stomach which may open at any moment, with all that filth… And you can’t show yourself anywhere anymore…
   Oncologist: Yes, I understand what you mean.
3. But I will talk to you before the operation in any case. And it is important to know that I am always available for you in case of questions. This is our phone number. I may not always answer the phone myself, but if necessary I will return your call when I do have the time.
point of view: at all times, the camera was directed at the physician [10]. The mean video duration was 6 min and 25 s. Manipulated versions were on average 40 s longer than standard versions.

measures

operationalization check (T1 and T2). We tested to what extent patients perceived the oncologist communication as competent, honest, and caring using three items (completely disagree = 1 to completely agree = 5).

background characteristics (T0). Patients’ sociodemographics included age, gender, educational level, and ethnic background. Medical characteristics assessed were time since diagnosis, treatment status, and primary tumor site. Patients’ trust in their own oncologist was assessed with the validated, 18-item Trust in Oncologist Scale (TiOS) (completely disagree = 1 to completely agree = 5), capturing cancer patients’ trust [11, 12]. Reliability of the scale was good (α = 0.82).

outcome assessment (T1 and T2). The primary outcome, trust in the observed oncologist, was assessed with the 18-item TiOS [11]. For this purpose, phrasing of the items was adapted to refer to the observed oncologist rather than the patient’s own oncologist.

Secondary outcomes were possible distal effects of communication: (1) likelihood of recommending the oncologist to others (not at all likely = 1 to very likely = 5), and (2) confidence that the proposed surgery would succeed (not at all confident = 1 to very confident = 5).

statistical analysis

All analyses were carried out using SPSS 16.0 (SPSS Inc., Chicago, IL, USA). Power analysis using G’Power version 3.1.5 [13] was carried out. Using an α of 0.05, for a 95% power to detect eight effects with a medium effect size of Cohen’s $\text{d} = 0.15$, at least 160 observations would be required [14]. To account for the fact that two observations were nested within each patient, the number of independent observations was calculated. Therefore, the required sample size was multiplied by 1 + the presumed correlation between TiOS scores of observations 1 and 2 (r = 0.70) [15]. This yielded a minimum sample size of 272 observations.

Missing values on the TiOS were replaced using expectation maximization [16]. Manipulation success was assessed using random intercepts multilevel analyses, to account for the multilevel structure of observations (level 1) nested within patients (level 2). We compared evaluations of the observed oncologist as competent, honest, and caring between standard and varied conditions. Main and interaction effects of sociodemographic characteristics and the communication variables on trust in the observed oncologist were also examined using random intercept multilevel analyses. Analyses were carried out stepwise to examine whether entering variables significantly improved model fit [17]. First, we assessed the need for multilevel modeling, by assessing variation in reported trust between and within participants without including any explanatory variables. Next, in Model 1, sociodemographic characteristics, patients’ trust in their own oncologist, and the observation order (first or second oncologist observed) were entered. In Model 2, the communication variations (competence, honesty, and caring) were added. To that end, we contrasted all four video versions for which a specific communication element was enhanced with the four versions for which it was kept standard. Exploratorily, all two-way interactions between sociodemographic characteristics and communication manipulations were tested (Model 3A), as well as interactions among the different communication manipulations (Model 3B).

The main effects stepwise multilevel model was then repeated, replacing ‘trust in observed oncologist’ with the secondary outcome variables: likelihood of recommending and expectation of surgery success.

results

data check

Trust scores from two patients were excluded from analyses because of high rates (>50%) of missing data. Missing values for trust were replaced at T0 (1.5%), T1 (3.6%), and T2 (1.8%).

Operationalization of all three communication elements was successful: the enhanced competence ($M = 4.08$ versus $M = 3.94$, $\beta = 0.12$, 95% CI 0.01, 0.23; $P < 0.05$), enhanced honesty ($M = 4.05$ versus $M = 3.89$, $\beta = 0.19$, 95% CI 0.08, 0.30; $P < 0.01$), and enhanced caring ($M = 3.35$ versus $M = 2.94$, $\beta = 0.45$, 95% CI 0.31, 0.58; $P < 0.001$) conditions were perceived as such.

patients

Sociodemographic and medical characteristics of the study sample ($n = 345$) are provided in Table 1. Patients’ mean trust in their own oncologist was $4.21$ (SD = 0.60). The mean trust in the observed oncologist was $3.65$ (SD = 0.73). The mean likelihood of recommend the oncologist was $3.39$ (SD = 1.18), and the mean expectation of surgery success was $2.26$ (SD = 0.74).

association between background characteristics and trust

Participants strongly differed in their reported trust [var ($\upsilon_0$) = 0.63, $\chi^2 = 0.06$, $P < 0.001$] (Model 0). Stronger trust in the observed oncologist was associated with patients’ older age, lower education, and stronger trust in their own oncologist. Finally, trust reported after the second observation was stronger than after the first (Table 2). These effects were observed even when variations in communication were taken into account.

effect of communication on trust

Trust in the observed oncologist ranged between $3.44$ (SD = 0.71), when all communication elements were standard, and $3.90$ (SD = 0.69), when all elements were enhanced (Figure 1). Enhanced competence, honesty, and caring each resulted in stronger trust (Model 2; Table 2 and Figure 2). An interaction between age and caring ($\beta = -0.15$, 95% CI $-0.25$, −0.05; P < 0.01) indicated that the effect of caring on trust diminished with increasing age (Model 3A). All other interactions were non-significant (Models 3A and 3B). Fit indices for each model are provided in Table 3.

effect of communication on likelihood of recommending and expectation of operation success

Patients were significantly more likely to recommend the oncologist when he expressed enhanced competence ($\beta = 0.19$, 95% CI 0.08, 0.29; $P < 0.001$), honesty ($\beta = 0.24$, 95% CI 0.13, 0.34; $P < 0.001$), and caring ($\beta = 0.36$, 95% CI 0.25, 0.46; $P < 0.001$). Also, patients were more confident of operation success after observing the oncologist expressing enhanced honesty ($\beta = 0.20$, 95% CI 0.08, 0.31; $P < 0.01$) or caring ($\beta = 0.16$, 95% CI 0.04, 0.27; $P < 0.01$). However, the expression of enhanced competence did not strengthen patients’ expectations of operation success ($\beta = 0.05$, 95% CI $-0.06$, 0.16; ns).
Discussion

This is the first experimental study showing that oncologist’s enhanced expression of specific communication behaviors results in stronger trust compared with standard communication. Moreover, we showed that such trust strengthens patients’ expectations of operation success and their reported willingness to recommend the oncologist.

Our results provide specific directions for which types of communication are beneficial, namely conveying medical competence, honesty, and caring. Even though our communication variations were small, effect sizes were moderate. Thus, oncologists can directly enhance their patients’ trust and expectations by means of even small alterations in their way of communicating. As such, these findings can be directly implemented in clinical practice as well as oncologist communication skill training.

Oncologist’s caring behavior, for example, by briefly addressing patients’ cues, led to the strongest increase in trust. Such emotionally supporting statements may be even more effective in gaining patients’ confidence than providing factual information [18]. Additionally, stressing medical competence, for example, by mentioning experience with the surgery concerned, was generally beneficial for trust. Such statements, which oncologists might avoid for fear of seeming boastful or defensive, may, in fact, be reassuring to patients. Similarly, expressing honesty by stressing the limitations of medical procedures and one’s capacities was perceived by patients as trustworthy. This is comforting to oncologists who may be concerned that such openness is interpreted by patients as indicating insecurity. Although being realistic should be carefully balanced with maintaining hope [19], our results suggest that patients overall do appreciate oncologists’ openness. Indeed, such openness even augments patients’ expectation of operation success.

Previous correlational findings indicated that oncologists’ behavior is an important determinant of patients’ trust [3]. This impact of communication on trust is now confirmed experimentally, thus enabling the conclusion of a causal relationship [20]. Because identical video footage was used throughout all our video versions, effects on trust can only be explained by the inserted manipulations. Moreover, the extremely skewed trust ratings traditionally found in patient-reported trust were successfully avoided using a video-vignettes design [21]. Patients rating their own oncologist usually appear hesitant to be critical, possibly originating from their strong dependence upon the oncologist [22].

Our results showed that, despite a clear overall effect of communication, observing an identical oncologist can still yield varying levels of trust. Such variations in how patients perceive oncologist communication can partly be explained by patients’ background. We found that elderly patients’ trust benefits less from caring communication by the oncologist. Similarly, patients’ personality was suggested to determine how they evaluate oncologist communication and trustworthiness [23]. An anxious disposition, avoidant attachment style and internal locus of control may predispose patients to trust their physician less [24–26]. The identification of other patient characteristics that influence their evaluation of communication and consequent trust will allow

Table 1. Sociodemographic and medical characteristics of the sample (n = 345)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Median (Range)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (n = 344)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>63 (29–89)</td>
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</tr>
<tr>
<td>Percentage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (n = 345)</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
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<tr>
<td>Female</td>
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<tr>
<td>Secondary/lower level vocational school</td>
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<td>49</td>
</tr>
<tr>
<td>College/university</td>
<td>166</td>
<td>48</td>
</tr>
<tr>
<td>Population (n = 344)</td>
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<td></td>
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<tr>
<td>Dutch</td>
<td>339</td>
<td>99</td>
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<tr>
<td>Other</td>
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<tr>
<td>Recruitment origin (n = 345)</td>
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<tr>
<td>Patient organization</td>
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<td>33</td>
</tr>
<tr>
<td>Non-academic hospital in rural area</td>
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<td>10</td>
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<tr>
<td>Time since diagnosis in years (n = 341)</td>
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<tr>
<td>0–1</td>
<td>42</td>
<td>12</td>
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<tr>
<td>1–2</td>
<td>61</td>
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<td>&gt;5</td>
<td>133</td>
<td>39</td>
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<tr>
<td>Treatment status (n = 345)</td>
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<tr>
<td>Undergoing regular follow-up care</td>
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<tr>
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<td>6</td>
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<td>Primary tumor site (n = 344)</td>
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<tr>
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<td>12</td>
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<tr>
<td>Other</td>
<td>25</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 2. Main effects of background variables, communication manipulations, and observation order on trust (TiOS) in multilevel analysis (Model 2)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE b</th>
<th>95% CI</th>
<th>P</th>
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</thead>
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<td>0.11, 0.30</td>
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<td>Patient gender</td>
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<td>0.10</td>
<td>-0.13, 0.25</td>
<td>ns</td>
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<tr>
<td>Patient education</td>
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<td>0.03</td>
<td>-0.14, -0.04</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Trust in own oncologist</td>
<td>0.41</td>
<td>0.08</td>
<td>0.27, 0.56</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Competence</td>
<td>0.17</td>
<td>0.04</td>
<td>0.08, 0.27</td>
<td>&lt;0.001</td>
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<tr>
<td>Honesty</td>
<td>0.30</td>
<td>0.05</td>
<td>0.20, 0.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Caring</td>
<td>0.36</td>
<td>0.05</td>
<td>0.26, 0.46</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Observation order</td>
<td>0.18</td>
<td>0.04</td>
<td>0.10, 0.26</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
oncologists to employ flexible communication approaches, tailored to patients’ individual preferences.

This study has some limitations. First, manipulated video versions were unavoidably longer; on average 40 s. Designing videos of equal length would involve including neutral ‘filler segments’ to standard conditions. These fillers, however, exert effects of their own as any communication is by definition meaningful. It is in itself interesting to note that, if used adequately, as few as 40 s may be needed to improve communication.

Second, using an experimental study design required instructing patients to observe an unfamiliar oncologist. Use of this design has previously invoked the question to what extent analog patients’ perceptions are comparable with perceptions of a real oncologist [27, 28]. Yet, accumulating evidence indicates that analog patient designs provide valid results [9, 29]. We have maximized patients’ identification, and thus external validity, by recruiting real oncologic patients and adjusting the camera perspective and setting of the observation [10].

In conclusion, this study contributes to clinical practice and training. It demonstrates that oncologists can strengthen their patients’ trust by adapting their communication behavior. This finding should encourage oncologists to express their competence, honesty, and caring behavior and should be addressed in oncologist communication skill training. Enhancing patients’ trust requires only a few seconds.

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disclosure

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references