Studying the effects of empathic communication on the occurrence of cognitive side effects in analogue breast cancer patients.

Bachelor thesis Business Communications

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Abstract

In medical context nocebo effects can occur when potential side effects of medication are brought to attention. One potential manner to minimize nocebo effects is by use of empathic communication. This study investigated the relationship between empathic communication and potential nocebo effects by letting 60 women watch either an empathic or a non-empathic video consultation. After the video, participants were asked how they felt about the physician and the patient. They filled in a questionnaire measuring their cognitive problems and performance, their health anxiety, their general complaints and their state of mind. Nocebo effects did occur during the experiment, as participants reported more cognitive problems after than before the video. However, empathic communication did not appear to reduce anxiety levels or the occurrence of nocebo effects. Health anxiety did not seem to be a moderator in this process. More research is needed to investigate whether empathic communication can help reduce nocebo effects.

Studying the effects of empathic communication on the occurrence of cognitive side effects in analogue breast cancer patients.

The shocking revelation that one has breast cancer has a tremendous impact on that person's life. One out of eight women in The Netherlands hears the devastating news at least once in their lives (Rijksinstituut voor Volksgezondheid en Milieu, 2015). From that moment on, the emotional cancer journey with countless hospital visits begins. In order to prevent women from falling into a downward spiral and to make them feel as comfortable as possible, it is the job of the health professionals to support women during and after this emotional journey.

Side effects of chemotherapy

Not only do women have to deal with the stigma of breast cancer, they have to go through physically and mentally demanding medical treatments on the way to better health as well, such as chemotherapy. Studies investigating chemotherapy reveal that chemotherapy can have a disturbing effect on a patient's body during treatment, destroying the bad as well as the good. Several short-term side effects occur, however, even years after treatment chemotherapy can still harm the body in several ways. First of all, chemotherapy can have several side effects, such as premature menopause, weight gain and long-term cardiac effects. These side effects vary, depending on the specific agent, dose and duration of the chemo (Partridge, Burstein, & Winer, 2001).

One side effect that has received increasing attention in research since a couple of years is the potential cognitive malfunctioning of the brain due to chemotherapy. Patients who have undergone chemotherapy are at risk of suffering from cognitive deficits after treatment. This is often referred to as 'chemobrain' or 'chemofog' (Boykoff, Moieni, & Subramanian, 2009). Schagen, Van Dam, Muller, Boogerd, Lindeboom and Bruning (1999) found that patients who were treated with adjuvant chemotherapy reported more memory and concentration problems than the group without such therapy. Of the patients treated with chemotherapy 28 percent showed signs of cognitive impairment compared to 12 percent in the control group. Cognitive impairment after chemotherapy was noticeable in a variety of different areas of cognitive functioning, such as mental flexibility, attention, information processing speed, visual memory, and motor function.

Even though this cognitive impairment is in some cases only slightly noticeable, it can have a significant impact on a person's life, especially on the psychosocial aspect. Boykoff et

al., (2009) analysed the impact of cognitive problems of breast cancer survivors in different environmental contexts. Cognitive side effects of the chemotherapy made some women experience a higher level of dependency and a diminished amount of confidence in their own abilities, leaving them scared and "emotionally drained".

> You have to fight to make yourself remember numbers, words, places that you go. Sometimes I would leave the house to go somewhere and I really couldn't remember how to get there… it almost made me break down because of the fact that you think you're losing your mind (Boykoff et al., 2009, p. 266).

Nocebo effect

The reported side effects and symptoms of a medication can be caused purely by the medication, i.e. chemotherapy itself. However, in many cases there are other prominent factors at play (Rief, Avorn, & Barsky, 2006). Patients' expectations and awareness of drug side effects can stimulate the occurrence of those side effects during medical treatment (Bingel, 2014). These often called *nocebo effects* can be referred to as: 'the development of negative effects that are attributed to a medication, albeit the drug itself does not cause the provocation of these symptoms' (Enck, Bingel, Schedlowski, & Rief, 2013, p. 200).

As a result, when concepts related to potential cognitive side effects of chemotherapy are made more readily available in one's mind, it increases the reporting of such side effects; especially in patients who have knowledge of the subject but do not have personal experience with chemotherapy (Schagen, Das, & Van Dam, 2009). Schagen et al. (2009) and Schagen, Das and Vermeulen (2011) investigated this phenomenon by examining the differences in cognitive performance between two groups (breast cancer patients with and without chemotherapy experience). The first group was informed about potential cognitive side effects of chemotherapy and the other group was not. Only breast cancer patients without chemotherapy experience reported having more cognitive problems after being informed about the cognitive side effects (Schagen et al., 2009).

However, in a later study it was found instead that breast cancer patients who had undergone chemotherapy experienced more cognitive problems after being informed about these side effects, than patients without such experience. As contradictory as these results might be at first glance, research clearly supports the assumption that informing patients about

potential side effects may induce unnecessary cognitive complaints. Nevertheless, health practitioners are obliged to discuss such side effects with the patients and many patients report finding it helpful to be aware of the potential side effects. Women have the right to know what is happening to their minds because of chemotherapy. As one patient pointed out:

> … you know, I wish that whether it's a doctor or a patient care coordinator or somebody, would sit down with a patient and talk to them [and say] 'You know, you may not get it but these are some of the things that happen… just be aware, so that you don't get frightened that you are losing it or aren't meeting everybody's expectations (Boykoff et al., 2009, p. 227).

To summarize, informing breast cancer patients about possible cognitive side effects may elicit more side effects than the medication itself would have inflicted, which makes it a difficult problem to tackle. Previous studies already revealed the occurrence of nocebo effects (Schagen et al., 2009; 2011), but complementary research is needed to prevent nocebo effects in the future.

Furthermore, it is still unknown whether similar effects occur when a physician conducts the message orally instead of on paper. As videos of bad news consultations have proven to be able to emotionally move people (Sep, Van Osch, Van Vliet, Smets, & Bensing, 2014), it can be interesting to look at the effects of informing analogue patients about cognitive side effects of chemotherapy by means of a video message. Hence, the following research question was introduced:

> *RQ1: To what extent can a physician's information about cognitive side effects of chemotherapy during a video-taped consultation induce more cognitive deficits in patients?*

Since it will be difficult from an ethical perspective to burden actual breast cancer patients with such studies, in many studies analogue patients are used. Analogue patients are healthy subjects or patients who watch and rate (scripted) videotaped medical consultations and who are asked to identify with the video-patient (Vliet, Wall, Albada, Spreeuwenberg, Verheul & Bensing, 2012). Fortunately, the emotional and physiological responses evoked in

analogue patients are comparable with the ones actual patients experience during a real clinical consultation (Vliet et al., 2012; Sep et al., 2014). For this reason, in this research healthy participants will be asked to act as analogue breast cancer patients.

Practitioner-Patient communication

Because of the scientifically proven nocebo effects it is important that patient-practitioner communication is analysed in order to examine how to inform patients best about potential side effects. Simultaneously, the occurrence of more side effects needs to be minimized. One way to tackle this problem is by working on an effective communication style that can make patients feel at ease during sessions, can help them to optimally recall information, and can minimize nocebo effects. It is well-established that the quality of patient-practitioner communication can influence the patient's health outcomes (Stewart, 1995) and consequently the communication style of the practitioner can be an important variable in the communication process.

Additionally, research has shown that the communication style of the physician can influence physical processes in the patient's body, such as the level of anxiety as well as outcome expectancies. Verheul, Sanders and Bensing (2010) investigated this trend by letting healthy people who acted as analogue patients take part in a role-play consultation with a general practitioner (GP). Four different role-plays were used, varying on two main bases: the GP showing negative/positive affect and uncertain/positive outcome. Only when both the criteria positive affect and positive outcome were met, a relevant decrease in the level of anxiety was found.

Apparently, empathic communication by itself is not enough to significantly decrease patients' level of anxiety. It is essential as well that physicians suggest a positive treatment outcome instead of an uncertain one, because patients expected in that situation their continuation of symptoms to be shorter and to have more control on their pain. Furthermore, participants were more positive towards the effectiveness of the treatment when positive outcomes were introduced. This shows that it is important for physicians to use a combination of both warm, empathic communication and raising positive expectations to create optimum results in patient's physical state and expectations (Verheul et al., 2010).

Further support for the assumption that communication can be a prominent component in the health process was found in a study by Sep et al. (2014) in which analogue patients watched a video of a bad news consultation. Two versions of the video were introduced in the experiment only varying in communication style: affective vs. standard communication.

Participants' anxiety level was measured by means of skin conductance. It was found that although skin conductance levels increased for all individuals during the consultancy, the levels of the group that was assigned to the affective communication condition decreased more during the remainder of the consultation. Furthermore, the information recall was significantly higher in the group that had been exposed to affective communication (Sep et al., 2014). Consequently, the following hypothesis was introduced:

> *H1: Participants who will watch a physician's empathic communication style during a videotaped physician-patient consultation will show lower anxiety levels than participants who will be presented with standard communication.*

Empathic communication and nocebo effect

Several studies have shown the importance of empathic communication on anxiety, affect and expectancies. Affective and empathic communication can make patients feel more at ease, help them recall information and enhance their expectations. As a result, there is a possibility that empathic communication can minimize the nocebo effect regarding self-reported cognitive problems and memory scores of breast cancer patients found by Schagen et al. (2009; 2011).

As is previously mentioned, even though skin conductance levels increase during medical consultations, the levels decreased more during the consultation with affective communication. Furthermore, the information recall was significantly higher in this condition as well (Sep et al., 2014). A possible explanation for this phenomenon is that decrease in anxiety can help people with their memory retrieval. Potentially, this might also be the case with empathic communication and cognitive side effects. This led to the second hypothesis:

> *H2: Participants who will watch a physician's empathic communication style during a videotaped physician-patient consultation will report less cognitive problems than participants who will be presented with standard communication.*

Health anxiety and nocebo effects

Lastly, in medical encounters it can be beneficial to know for which patients nocebo effects are most likely to occur, as health practitioners can fit their communication to the patient. It is proven that the expectation of patients to develop side effects is a strong predictor

of patient-reported side effects a few weeks or months later. Patients who are more concerned about their medication are more likely to develop side effects, in particular when they start using new medication (Nestoriuc, Orav, Liang, Horne, & Barsky, 2010). Furthermore, health anxious individuals tend to interpret information regarding diagnosis more negatively than less health anxious individuals (Hadjistavropoulos, Craig, & Hadjistavropoulos, 1998).

Thus, it seems that nocebo effects are more likely to manifest in people with relatively high levels of health anxiety. Physically healthy people suffer from health anxiety when one experiences "excessive anxiety about one's health, stemming from beliefs that one's physical integrity is threatened" (Taylor & Asmundson, 2004, p. 1). It can be useful to test whether similar patterns will occur during this study. In accordance with these findings the final hypothesis was introduced:

> *H3: Especially people with high levels of health anxiety will report more cognitive complaints compared to people with lower levels of health anxiety, after being informed about the cognitive side effects of chemotherapy.*

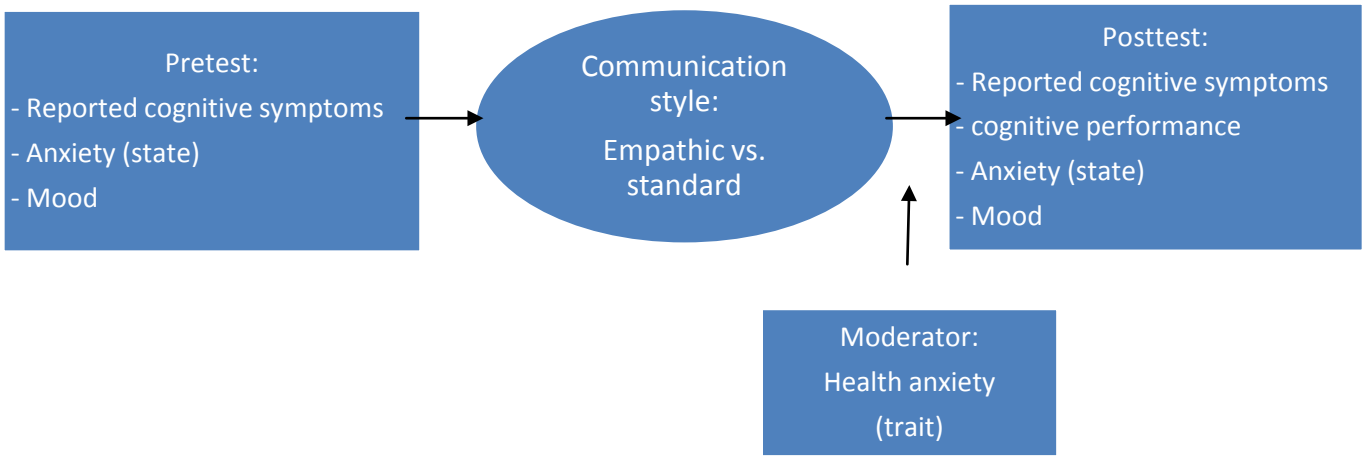
In short, the main purpose of this study is to investigate the effects of empathic communication during a consultation on the occurrence of cognitive side effects of chemotherapy. This will contribute to the body of knowledge about efficient physician-patient communication regarding side effects of medication. Communication during medical encounters about potential side effects needs to be optimized for the well-being of the patient. By providing insights into the effects of empathic communication on the occurrence of cognitive side effects this study might lead to significant progress in the medical field of communication.

Method

Research design

For this study a 2 x 2 between-subjects factorial design was used. The respondents were randomly assigned to one of the two conditions: standard communication vs. empathic communication. A within-subjects design was also employed: differences in cognitive problem reporting and performance before and after the video. The independent variable was standard vs. empathic communication. The dependent variables were: reporting of cognitive side effects, cognitive performance, anxiety levels and mood. Health anxiety was included as moderator (see figure 1). During the experiment the participants watched a videotaped consultation. In this study not actual breast cancer patients, but analogue patients watched the consultation because of ethical reasons.

Figure 1. research design



Materials

In the two video consultations, one employee of the Radboud University and one student of the faculty of medical science (both female) acted out a consultation about cognitive side effects of chemotherapy. In one of the versions the physician (actor) used empathic communication, while in the other version standard communication was used during the consultation. Further elaboration of the differences between the versions can be found in table 1. Both videos consisted of two parts; in the first part the patient introduced herself. The second part was the actual consultation between the physician and the patient.

Both versions were comparable in length (around five minutes). For the study similar scripts were used as were employed in the study of Sept et al. (2014) and Verheul et al., (2010). By doing so, the script in the videos had already passed a pre-test and were a sufficient instrument to use in practice.

Table 1. Differences between the empathic and standard video consultancy.

Video 1: empathic	Video 2: standard
Frequent eye contact	Little eye contact, avoidance of eye contact
Open posture	Closed posture
Friendly tone of voice	Professional tone of voice
More understanding towards patient	Tries less fully to grab the patient's feelings
Emphasizes that physician can always help the patient when needed.	Does not emphasize that physician will help patient in process.

Participants

A total of 60 participants took part in this study. Because females are more likely to become involved with breast cancer, only female participants were selected. The average age of the participants was 36.85 (*SD* = 14.98; range 19 – 64). An independent samples t-test showed no significant differences in the age distribution between the two conditions (t (58) = 1.14, p =. 260).

Most of the participants had finished an university degree (48.3 percent) or an HBO degree (31.7 percent). Only 1.7 percent was lower educated. Educational background was equally distributed over the two conditions (χ^2 (5) = 2.34, p = .801).

Another Chi-square test showed no significant differences in the amount of people that have had cancer themselves between the two experimental groups (χ^2 (1) = 1.24, p = .265). Merely 1.7 percent of the participants reported having had cancer themselves. A Chi-square test showed no significant differences in work situation between the two groups (χ^2 (2) = 3.14, p = .208). Furthermore, an independent-samples t-test showed no significant differences in the level of empathy (t (58) = 1.03, p = .306) of the analogue patient between the two conditions.

Because of some incomplete returned questionnaires, some data was left out of the study (n=8). Consequently, the empathic video was evaluated by 27 women and the standard video by 33 women.

Instruments

The questionnaire measured participants' previous knowledge about chemotherapy-induced cognitive problems, their mood, anxiety and their level of general complaints. Potential indicators for health anxiety were also included. A cognitive test was used to determine the participants' cognitive capacities after the video. The reported cognitive complaints of the participants were considered before and after the experiment. Lastly, the questionnaire covered demographic variables, such as the age, sex and educational background.

The items of the questionnaire were summed and averaged to form different variables: cognitive complaints, cognitive performance, anxiety before video, anxiety after video, health anxiety, empathy physician, mood before video, mood after video, general complaints, authenticity of the consultation, relationship between physician and patient, identification with the patient, empathy (trait).

1. Main dependent variables

Cognitive complaints

Cognitive complaint reporting (before and after the video) was measured by means of two 5-point Likert scale items derived from the LKV (Physical Complaints Questionnaire) (Hemert, 2003): 'memory loss' and 'concentration problems'. Participants were asked for the occurrence of these problems in the last week including today (1 = strongly disagree, 5 = strongly agree). These complaints were analysed separately because there was no correlation between them. Higher scores indicate higher levels of complaint reporting.

Cognitive performance

Cognitive performance was measured with three tests (Burg, Saan & Deelman, 1985). The first test was a recall test, which consisted of three learning trials. The second test measured delayed word recall. The last one was a recognition test. The number of right and wrong answers was determined. The wrong answers were subtracted from the right for each participant. This created a recall score, a delayed recall score and a recognition score.

2. Moderator

Health anxiety (trait)

The health anxiety of the respondents was determined with fourteen 5-point Likert scale items derived from the Whiteley index (Pilowsky, 1967), for example:

"*Do you often worry about the possibility of you having a serious illness?"* with 1 = 'strongly disagree' and 5 = 'strongly agree'. Further examples of items of the questionnaire can be found in the Appendix A. Higher scores indicate higher levels of health anxiety. The reliability of 'Health anxiety' was acceptable: α = .79.

3. Anxiety (state)

The level of participants' anxiety was measured with 5-point Likert scales. It was measured with the statement '*I am feeling*' and participants' answers could vary from 1 = 'strongly disagree' to 5 = 'strongly agree' with higher scores indicating lower levels of anxiety.

'Anxiety before video' was measured with three items (based on Marteau & Bekker, 1992): *worried, tense, upset.* The reliability of 'anxiety before video' was acceptable: α = .69. To determine 'anxiety after video' six items were employed: *worried, calm, tense, upset, relaxed, satisfied.* The reliability of 'anxiety after video' was good: α = .81.

4. Manipulation check

Empathy of the physician (manipulation check)

The empathy of the physician was measured with seven items of the QUOTE-com questionnaire (derived from Eijk, Sixma, Smeets, Tavarela Veloso, Odes, Montague, Fornaciari, Moum, Stockbrugger & Russel, 1998), for example:

"The physician was honest with the patient"(1 = totally disagree, 5 = totally agree).

Higher scores indicate higher levels of perceived empathy. The reliability of 'Empathy physician' was good: α = .93.

5. Additional variables: mood and general complaints

Mood

Participants' mood was measured with 5-point Likert scales with the statement '*I am feeling*'. Participants' answers could vary from 1 = 'strongly disagree' to 5 = 'strongly agree' with higher scores indicating better mood.

'Mood before video' and 'Mood after video' were determined by means of five variables (based on Watson, Clark & Tellegen, 1988): *good, strong, cheerful, gloomy, annoyed.* The reliability of 'mood before the video' was good: α = .85. The reliability of 'mood after video' was good: α = .80.

General complaints

The participants' general complaints before and after the video were measured with eight items (derived from: Hemert, 2003): *fatigue, dizziness, insomnia, muscle pain, nausea, stomach ache, head ache, pain in the limbs.* The introduced statement 'Report to what extent you have been suffering this past week, including today, from' was used to measure the general complaints and could vary from 1 = 'not at all' to 2 = 'a lot'. Higher scores indicate more general complaints.

Because Cronbach's alpha was not high enough, the items were analysed separately.

6. Control variables

Authenticity of the consultation

In order to investigate the authenticity of the consultation three items were used. For example:

"The video consultation resembled a real conversation between a physician and a breast cancer patient". The items were measured by means of 5-point Likert scales (1 = strongly disagree to 5 = strongly agree). The higher the score, the more authentic the consultation was perceived to be. The reliability of the variable 'Authenticity consultation' was good: α = .87.

Relationship between physician and patient

The relationship between the physician and the patient was measured by means of three items. For example:

"The physician and the patient have a good relationship". The Likert scales were anchored by 1 = 'strongly disagree' to 2 = 'strongly agree'. Higher scores indicated a more positively perceived physician-patient relationship. The reliability of 'Physician-patient relation' was good: α = . 94

Identification with the patient

To determine how well the respondents could identify themselves with the video patient four items were used. For example:

"I can identify myself with the patient in the video". The scale varied from 1 = 'Strongly disagree' to 2 = 'strongly agree'. Higher scores indicate better identification with the patient. The reliability of 'Patient identification' was acceptable: α = .73.

Empathy (trait)

The empathy of the analogue patient (trait) was measured with eight 5-point Likert scale items derived from the Toronto Empathy Questionnaire (Spreng, McKinnon, Mar & Levine, 2009). The Likert scale was anchored by 1 = 'never' to 2 = 'always'. For example: "*When someone else is happy, then I tend to be happy as well"*. Higher scores indicate higher levels of trait empathy. The reliability of 'Empathy analogue patient' was acceptable: $\alpha = .75$.

Procedure

Online questionnaires were distributed through the online program Qualtrics. Women were asked individually to take part in the experiment. They were told the study had to do with communication about side effects of chemotherapy for breast cancer patients. The participants were randomly assigned to one of the two conditions (standard vs. empathic communication).

Firstly, the participants received questions regarding their existing knowledge of the subject, their perception of their cognitive abilities and questions about their health. After they had completed the first part of the questionnaire, they watched one of the two video consultations between a breast cancer patient and a physician.

After the video, the participants were asked to answer similar questions about their health as before. Additionally, the questionnaire contained questions regarding health anxiety and a cognitive test, measuring their potential cognitive deficits. After the cognitive test, the participants answered some demographic questions. All data was collected in April 2015. The questionnaire took around 30 minutes.

Statistical analysis

All analyses were conducted using SPSS 21. Composite means were calculated for the scales where Cronbach's alpha was at least adequate. Chi-squares and independent samples t-tests were employed to determine any significant differences between the two groups. Paired-sample t-tests were conducted to test for differences before and after the video. A two-way ANOVA was performed to test for moderation.

Results

1. Main analyses: Cognitive problems and complaint reporting

Empathic vs. standard communication and reported cognitive problems

To investigate whether analogue patients who watched the consultation with empathic communication reported less memory and concentration problems, independent samples t-tests were used. The test showed no significant differences in the reported memory problems before (t (58) = 0.79, p = .432) or after the video (t (58) = 1.38, p = .173) between the two conditions. No significant differences were found in the reported concentration problems between the two conditions before (t (58) = 0.32, p = .754) or after (t (58) = 0.21, p = .833) the video.

Cognitive problems before and after the videos.

To test the differences in concentration and memory problems for all respondents before and after the video, a paired-samples t-test was employed. The test showed that the reported memory problems were significantly higher after (M = 1.62, SD = 0.69) than before the video (M = 1.40, SD = 0.59). (t (59) = 2.52, p = .014). Also, respondents reported having significantly more concentration problems after the video (M = 1.95, SD = 0.79) than before (M = 1.67, SD = 0.82) (t (59) = 3.43, p = .001).

Empathic vs. non-empathic communication and cognitive performance

An independent samples t-test showed no significant differences between the two conditions in the amount of right (t (58) = 0.78, p = .438) and wrong answers (t (58) = 0.12, p = .907) on the learning trial. Furthermore, no significant differences were found in the right (t (58) = 0.28, p = .782) and wrong word recollection (t (58) = 0.27, p = .790) between both conditions. This was also true for the number of right (t (58) = 0.01, p = .991) and wrong answers (t (58) = 0.02, p = .988) on the recognition task.

2. Moderator: Health anxiety

To investigate whether health anxiety functioned as moderator for the reported cognitive complaints after the video, a two-way analysis of variance was employed. The ANOVA with health anxiety (low/high) and video version (empathic/standard) as factors showed no significant main effect of the videos on participants' reported memory problems (F (1, 56) = 2.47, p = .122). Health anxiety was not found to have a significant main effect on the reporting of memory problems (F (1,56) < 1). The interaction effect between health anxiety and the version of the video was not significant either (F (1,56) = 1.07, p = .305).

No significant main effect was found on the reported concentration problems either when health anxiety and version of the video were taken as factors (F (1, 56) < 1). Health anxiety was not found to have a significant main effect on participants' reported cognitive problems (F (1, 56) < 1). The interaction effect between health anxiety and version of the video was not significant (F (1, 56) < 1.

An independent-samples t-test showed no significant differences in the level of health anxiety between the two conditions (t (56) = 1.46, p = .149).

3. Anxiety

In order to investigate whether the participants' anxiety levels did significantly differ between both conditions, an independent samples t-test was employed. No significant difference was found between the two conditions considering the level of anxiety before (t (58) = 0.17, p = .869) and after the video (t (58) = 0.07, p = .947).

To test for important differences in the overall anxiety of the participants, a paired-samples t-test was used. The test showed no significant difference between participants' anxiety before and after the video (t (59) = 1.00, p = .323).

4. Manipulation check: Empathy physician

In order to check whether the physician in the empathic video was indeed more empathic than she was in the non-empathic video an independent samples t-test was employed. The t-test showed that participants who watched the empathic video (M = 3.52, SD = 0.48) perceived the physician as significantly more empathic than the ones who had seen the non-empathic video (M = 2.14, SD = 0.73) (t (58) = 8.40, p < .001).

5. Additional analyses: mood, general complaints

Empathic vs. standard communication and mood and anxiety levels

An independent samples t-test showed no significant differences in the mood before (t (58) = 0.82, p = .417) and after the video (t (58) = 1.12, p = .268) between the two conditions.

A paired-samples t-test showed no significant difference in mood before and after the video (t (59) = 1.27, p = .209).

General complaints before and after the videos.

Another paired samples t-test was conducted to investigate whether the general complaints did also significantly differ before and after the video. No significant differences were found for fatigue (t (59) = 0.90, p = .374), dizziness (t (59) = 1.07, p = .289), insomnia (t (59) = 0.00, p = 1.00), muscle pain (t (59) = 0.89, p = .376), nausea (t (59) = 1.47, p = .146), stomach ache (t (59) = 0.00, p = 1.00), head ache (t (59) = 0.97, p = .335) and pain in the limbs (t (59) = 0.24, p = .811).

An independent samples t-test showed no significant differences for fatigue (t (58) = 1.61, p = .114), dizziness (t (58) = 0.33, p = .739), insomnia (t (58) = 0.56, p = .578), muscle pain (t (58) = 0.52, p = .608), nausea (t (58) = 0.20, p = .841), stomach ache (t (53) = 1.29, p = .202), head ache (t (59) = 0.31, p = .761) and pain in the limbs (t (59) = 0.50, p = .616).

6. Control variables

Authenticity

To test whether both groups of participants perceived the consultations as (equally) authentic an independent samples t-test was used. Respondents who watched the empathic video (M = 3.12, SD = 0.74) evaluated the consultation as significantly more authentic than the respondents who watched the non-empathic video (M = 2.23, SD = 0.85) (t (58) = 4.27, p < .001). Furthermore, the average rating of the videos was 2.66 out of 5.00: the videos were neither convincing nor unconvincing.

Physician-patient relation

An independent samples t-test showed that participants in the empathic group evaluated the relationship as significantly better (M = 3.30, SD = 0.53) than participants from the standard condition (M = 1.83, SD = 0.80) (t (58) = 8.23, p < .001).

Patient identification

An independent samples t-test showed that participants in the standard condition (M = 2.92, SD = 0.66) reported being significantly more able to identify with the patient than the ones in the empathic condition (M = 2.56, SD = 0.63) (t (58) = 2.10, p = .041).

Conclusion and discussion

Earlier studies concerning nocebo effects led to the inference that just awareness of medication itself can already enhance the further occurrence of side effects (Bingel, 2014). Especially in the medical field it can be important to take notice of such effects in order to improve the communication between physicians and their patients. Empathic communication can be a prominent factor in this process, as empathic communication can help ease patients feelings and help them to more properly recall information (Sep et al., 2014). For this reason the purpose of this study was to investigate whether empathic communication can reduce cognitive side effects during a consultation about cognitive side effects (of chemotherapy).

Schagen et al., (2009) found that cognitive complaints can be increased after being informed about them in text. However, it is not known whether similar effects would occur during a video-taped consultation. Hence, the following research questions was introduced:

> *RQ1: To what extent can a physician's information about cognitive side effects of chemotherapy during a video-taped consultation induce more cognitive deficits in patients?*

The results of this study show that respondents did report more memory and concentration problems after the video than before. These results are in line with Schagen et al., (2009). Apparently, video consultations can also evoke more memory and concentration problems. This could be an indication that nocebo effects also occur during video consultations.

Because of promising earlier results (Verheul et al., 2010; Sep et al., 2014) it was assumed that empathic communication could also reduce anxiety levels in patients, which led to the first hypothesis:

> *H1: Participants who will watch a physician's empathic communication style during a videotaped physician-patient consultation will show lower anxiety levels than participants who will be presented with standard communication.*

This hypothesis was rejected. The video did not seem to have a significant effect on participants' anxiety levels, regardless of whether the physician was empathic or not. These

results suggest that despite one video being more empathic, the emotions evoked by respondents did not significantly differ between the two videos. This is in line with Verheul et al., (2010), who found that empathic communication alone was not enough to increase anxiety levels in patients. A positive treatment outcome was also a core component in the process.

The second hypothesis was introduced based on Sep et al. (2014) who found that information recall was significantly higher when affective communication was used.

> *H2: Participants who will watch a physician's empathic communication style during a videotaped physician-patient consultation will report less cognitive problems than participants who will be presented with standard communication.*

This hypothesis was also rejected. No significant differences were found in reported cognitive and concentration problems between the two conditions. Empathic communication appeared not to be able to reduce the reported cognitive problems. Moreover, empathic communication seemed to have no significant effect on the (delayed) recall and recognition of words. This could indicate that nocebo effects occur regardless of the communication style of the physician. These results contradict with a study by Varelmann, Pancaro, Cappiello, Camann and William (2009). Participants reported having less pain after anesthetic injection when the anaesthesiologist used gentler more reassuring words.

A possible explanation for this might be the use of video consultations and that our study was concerned with cognitive problems and not with physical ones. Perhaps under certain circumstances it matters the most what is said and not the manner in which it is communicated.

The final hypothesis was about health anxiety. Health anxious individuals tend to interpret information regarding diagnosis more negatively than less health anxious individuals (Hadjistavropoulos et al., 1998). As a result, the final hypothesis was introduced:

> *H3: Especially people with high levels of health anxiety will report more cognitive complaints compared to people with lower levels of health anxiety, after being informed about the cognitive side effects of chemotherapy.*

This final hypothesis was rejected as well. Participants' health anxiety did not appear to influence the reported cognitive problems. This is not fully in line with Hadjistavropoulos et al., (1998) regarding health anxious individuals interpreting information regarding diagnosis more negatively. However, Hadjistavropoulos et al., (1998) did not find significant differences in the reported medical problems between health anxious and non-anxious individuals either. In this study, the use of videos instead of actual consultations could have been a possible explanation for the non occurrence of differences. Participants might not have been able to completely engage in the set situation, because the video did not fully resemble real-life.

Findings manipulation check

The physician from the empathic video was perceived as more empathic. Hence, the communication style was successfully manipulated. Fortunately, the relationship between the physician and patient was perceived as better in the empathic video. This is a further indication that the manipulation was successful.

Limitations

Although results in this study can be applied to further improve communication in the medical field, some limitations that could have inferred with the results should be mentioned.

Firstly, participants' health anxiety was measured after having seen the video. Because the videos differed on their empathic level, this manipulation can have influenced participants' health anxiety. It would have been better if health anxiety was measured before the video. Secondly, there were some technical difficulties with the video during the study. Consequently, the sound of the video was not always good and the video could not be opened in Internet Explorer. This could have led to participants not filling in the entire questionnaire.

Moreover, the authenticity of the video could have been better and did differ for the two conditions. The empathic video was evaluated as significantly more authentic than the non-empathic video. This could be explained by physicians being overall empathic in real-life consultations as well. Nevertheless, this could have influenced the results of this study, as participants are more likely to emphasize with a situation that resembles real-life.

Furthermore, patients appeared to be more able to identify themselves with the patient in the non-empathic video. A possible explanation for this is that participants felt more sorry for the patient in the non-empathic video. In fact, vicarious feelings of sympathy (sadness) are

related with empathy overall (Fultz, Schaller, & Cialdini, 1988). Nevertheless, differences in level of identification could have led to differences in the results.

The last aspect of the video that needs to be pointed out is the sequence of the identification video and the actual measurement of the variable 'identification with the patient'. The identification video was shown and the video consultation immediately followed. Because of this, the empathic vs. non-empathic manipulation could have had an effect on participants' identification with the patient. Therefore, it might would have been more sufficient when the identification with the patient was measured immediately after the identification video.

Furthermore, anxiety before the video was measured with only three items, while the anxiety after the video consisted of six items. It might have been more reliable if anxiety would have been determined by the same items before as after the video.

Lastly, all questionnaires were distributed online and consequently participants' environment varied in this study. This could have influenced the results as well.

Practical implication and further research

This study has created more insight into the field of medical communication by investigating the influence of empathic communication on the occurrence of cognitive side effects in a patient-physician consultation. Findings of this study could be used to optimize communication in the medical field while taking notice of nocebo effects.

Future studies could investigate whether video consultations with empathic communication combined with positive outcome will reduce the occurrence of nocebo effects. It could also be interesting to involve actual (former) breast cancer patients in follow-up studies.

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Appendix A

Questionnaire

Relationship between physician and patient:

1. De arts en patiënt gaan goed met elkaar om.
2. De arts en patiënt hebben een goede relatie.
3. De arts en patiënt kunnen goed met elkaar opschieten.

Authenticity of the consultation:

1. Het leek alsof ik naar een echt gesprek tussen…
2. Het gesprek in de video zou in het echt ook…
3. Het gesprek in de video leek op een echt gesprek tussen…

Physician's empathy:

1. De dokter gaf de patiënt voldoende aandacht.
2. De dokter luisterde goed naar de patiënt.
3. De dokter nam voldoende tijd voor de patiënt.
4. De dokter was vriendelijk.
5. De dokter was eerlijk tegen de patiënt.
6. De dokter nam de klachten van de patiënt serieus.
7. De dokter was empatisch.

Identification with the video patient:

1. De patiënt in de video lijkt op mij.
2. Ik vind het moeilijk om mij te verplaatsen in de patiënt in de video.
3. De patiënt in de video is een zelfde persoon als ik ben.
4. Ik kan mij identificeren met de patiënt in de video.

Health anxiety:

1. Maak u zich vaak zorgen over de mogelijkheid dat u een ernstige ziekte heeft?
2. Heeft u last van veel pijntjes?
3. Vindt u dat u zich vaak bewust bent van dingen die zich in uw lichaam afspelen?
4. Maakt u zich vaak zorgen om uw gezondheid?
5. Heeft u vaak verschijnselen van zeer ernstige ziektes?
6. Als een ziekte onder uw aandacht wordt gebracht (door de radio, televisie, kranten, of iemand die u kent) maakt dat u het zelf krijgt?
7. Als u zich ziek voelt en iemand vertelt dat u er beter uitziet, raakt u dan geïrriteerd?
8. Vindt u dat u last heeft van veel verschillende klachten?
9. Is het gemakkelijk voor u om uzelf te vergeten en aan allerlei andere dingen te denken?
10. Is het moeilijk voor u om de dokter te geloven wanneer hij of zij u vertelt dat er voor u niets is om u zorgen over te maken?
11. Krijgt u het gevoel dat mensen uw ziekte niet serieus genoeg nemen?
12. Denkt u dat u zich meer zorgen maakt over uw gezondheid dan de meeste mensen?
13. Denkt u dat er iets ernstig mis is met uw lichaam?
14. Bent u bang voor ziekte?

Participant's empathy (trait):

1. Als iemand anders blij is, dan heb ik de neiging om ook blij te worden.
2. De tegenslagen van andere mensen trek ik mij niet zo aan.
3. Het maakt me verdrietig als ik ziet dat iemand anders respectloos wordt behandeld.
4. Ik houd ervan om ervoor te zorgen dat anderen zich beter voelen.
5. Ik kan het aan iemand zien als hij/zij verdrietig is, ook al zegt hij/zij niks.
6. Ik merk dat ik mijn eigen stemming vaak afstem op die van anderen.
7. Het interesseert mij niet echt hoe anderen zich voelen.
8. Ik krijg een sterke drang om iemand te helpen als ik zie dat hij/zij overstuur is.

Appendix B

Video script: introduction of the patient

Patiënt:

Mijn naam is Yvonne de Groot, ik ben 33 jaar en ik woon in Utrecht. Bij mij is een aantal maanden geleden borstkanker geconstateerd. Ik ben daar natuurlijk heel erg van geschrokken, ik heb normaal eigenlijk nooit iets dus het overkomt je gewoon. Ik heb inmiddels een borst besparende operatie gehad waarbij de tumor is verwijderd. Maar de arts heeft mij geadviseerd wel chemotherapie te ondergaan om er zeker van te zijn dat alle kankercellen weg zijn. Ik weet eigenlijk niet zo heel goed wat ik kan verwachten. Ik heb er wel al een gesprek over gehad een tijdje geleden maar ik heb nu weer een gesprek omdat ik graag iets meer wil weten over de bijwerkingen.

/ U ziet hierna het gesprek wat Yvonne met haar arts had een week voor haar eerste chemokuur. probeert u zich in te leven in Yvonne en zich in haar situatie te verplaatsten. U krijgt nu het filmpje te zien. Daarna krijgt u een aantal vragenlijsten en opdrachten. /

Video script: empathic video

A: Goedemiddag

P: Hallo

A. Gaat u zitten; ik ben dr. Van de Pol. Ik heb gehoord van mijn collega dat u wat vragen had over de chemotherapie.

P: Klopt ja, ik heb gesproken met dokter Jaspers.

A: En u had vragen over de chemo komende week?

P: Ja ik vind het allemaal heel erg spannend en ik weet eigenlijk niet zo heel goed wat ik kan verwachten.

A: Ja, maar hoe gaat het met u?

P: Ja opzich wel goed naar omstandigheden, ik sport nog steeds veel, op het werk gaat het ook wel goed. Ik heb ook wel goede afspraken gemaakt met de baas als het, naja als het niet zo goed gaat dan mag ik gewoon thuis blijven.

A: Oke, en wat voor werk doet u?

P: Ik ben secretaresse.

A: En u sport, wat voor sport?

P: Ik wandel veel en ik loop hard, één keer in de week.

A: Ja, nou ja dat kunt u gewoon blijven doen. Maar over de bijwerkingen, u had vragen hoorde ik?

P: Ja, ik heb de patiënten folder doorgenomen en ik zag daar van alles in staan over bijwerkingen en ik was eigenlijk wel heel erg benieuwd welke dat zijn.

A: En van welke bijwerking wilde u precies wat weten?

P: Ik las dat mensen na chemotherapie geheugenproblemen kunnen krijgen dus daar wilde ik nog wel iets meer over weten.

A: Ja nee, dat klopt het kan voorkomen dat mensen cognitieve problemen krijgen en dat wil dus zeggen in het geheugen, concentratie en snelheid van informatieverwerking.

P: Dus cognitief heeft te maken met het geheugen?

A: Ja dat klopt.

P: Dus ik kan last krijgen van geheugen problemen en concentratieproblemen?

A: Ja.

P: En waar moet ik dan precies aan denken, kunt u daar een voorbeeld van geven?

A: Ja, dat u niet meer weet wanneer u een verjaardag heeft, een afspraak heeft of niet meer weet waar u uw autosleutels heeft neergelegd, dat soort dingen moet u aan denken.

P: En kan ik daar zelf iets aan doen?

A: Ja u kunt ordenen, dus alles een beetje overzicht van houden, dus wanneer er een verjaardag is en wanneer er een afspraak is en ook elke keer de autosleutels op dezelfde plek neerleggen. En daarnaast kunt u uw omgeving op de hoogte stellen van dit probleem. Want dan weten zij er ook vanaf.

P: Oke dank u wel.

A: Was dit het wat u betreft?

P: Ja ik weet wel genoeg denk ik, ik vind het wel heel erg spannend maar dat is denk ik maar gewoon afwachten.

A: Ja het is inderdaad gewoon afwachten, maar als het aan de orde komt kan ik u altijd nog doorverwijzen naar de neuropsycholoog.

P: Oke, dat is fijn om te weten.

A: Nou sterkte de komende tijd en tot ziens.

P: Dank u wel.

A: Dag.

P: Doeg.

Video script: non-empathic video (standard communication)

A: Goedemiddag

P: Hallo

A. Gaat u zitten; ik ben dr. Van de Pol en ik heb gehoord van mijn collega dat u wat vragen had over de chemotherapie.

P: Klopt ja ik heb gesproken met dokter Jaspers.

A: En u had vragen over de chemo voor komende week?

P: Ja ik vind het allemaal heel erg spannend en ik weet eigenlijk niet zo heel goed wat ik kan verwachten.

A: Ja, maar hoe gaat het met u?

P: Ja opzich wel goed naar omstandigheden, ik sport nog steeds veel, op het werk gaat het ook wel goed. Ik heb ook wel goede afspraken gemaakt met de baas als het, naja als het niet zo goed gaat dan mag ik gewoon thuis blijven.

A: Oke, en wat voor werk doet u?

P: Ik ben secretaresse.

A: En u sport, wat voor sport?

P: Ik wandel veel en ik loop hard, één keer in de week.

A: Ja, nou ja dat kunt u gewoon blijven doen. Maar over de bijwerkingen, u had vragen hoorde ik?

P: Ja, ik heb de patiënten folder doorgenomen en ik zag daar van alles in staan over bijwerkingen en ik was eigenlijk wel heel erg benieuwd welke dat zijn.

A: En over welke bijwerking wilt u precies informatie?

P: Nou ik las dat mensen na chemotherapie niet altijd een goed geheugen behouden dus ik wilde daar wel graag iets meer over weten.

A: Ja, dat klopt patiënten die chemotherapie krijgen die krijgen cognitieve veranderingen. Dat zijn veranderingen in geheugen, veranderingen in je concentratie, van dat soort dingen.

P: Dus cognitief heeft te maken met het denkvermogen?

A: Ja.

P: Dus ik kan na de chemotherapie misschien dingen niet meer zo goed onthouden en met niet meer zo goed concentreren?

A: Ja, dat klopt.

P: En waar moet ik dan precies aan denken, kunt u misschien een voorbeeld geven?

A: Dat u niet goed kunt onthouden waar u uw autosleutels bijvoorbeeld hebt neergelegd, of dat u niet goed meer weet wanneer een verjaardag of afspraak was. Dat soort dingen.

P: Ja, kan ik daar zelf nog iets aan doen?

A: Rust nemen, ordenen dus de sleutels gewoon elke keer op dezelfde plek neerleggen en uw omgeving op de hoogte stellen van het feit dat dit gaat gebeuren.

P: Oke, dank u wel.

A: Was dit het wat u betreft?

P: Ja ik weet wel genoeg denk ik, ik vind het wel heel erg spannend maar dat is denk ik maar gewoon afwachten.

A: Ja het is inderdaad gewoon afwachten, maar als het aan de orde komt kan ik u altijd nog doorverwijzen naar de neuropsycholoog.

P: Oke dat is fijn om te weten.

A: Nou sterkte de komende tijd en tot ziens.

P: Oke, dank u wel.

A: Dag.

P: Doeg.