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Abstract

The present research systemically examines the effect of a prominent technique used in the area of medical communication and education – including testimonials in reports of medical information. Precisely, it was examined whether using the first person perspective of patients in reports on Deep Brain Stimulation (DBS) as treatment of neurological diseases elicits stronger emotions in recipients than reports using the third person perspective of patients. Correspondingly, memory performance with regard to DBS-related content should be biased towards information of the same valence as the emotions elicited. Results of one experiment support these predictions. Presenting DBS-related information using testimonials (i.e., programmed patients) who report from a first person perspective elicited stronger negative emotions which, in turn, fostered memory performance regarding negative DBS-related contents compared to presenting the same information using a testimonial presenting information from a third person perspective. Practical implications for medical communication are discussed.

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Key words: medical communication, medical knowledge, narrative perspective, emotions, memory, Deep Brain Stimulation

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For scientific advancements to find their application in society, they need to be transferred to the broader public. To this effect, scientific findings are often disseminated to a general audience by media coverage, for example, through radio programs or multimedia features on the web (cf., Burakgazi, & Yildirim, 2014). Especially recent developments and achievements of modern medicine such as invasive medical treatments of incurable diseases enjoy great popularity in the media (cf., Kimmerle, Flemming, Feinkohl, & Cress, 2014; McCauley, Minsky, & Viswanath, 2013; Sapp, Korsching, Arnot, & Wilson, 2013). Importantly, due to their invasive nature and their impact on human health, these treatments are often controversially discussed (Südmeyer, et al., 2012). Consequentially, information about the respective treatment has the potential to elicit both positive as well as negative emotions in recipients (e.g., Gilbert & Ovadia, 2011). Considering that emotions bias information reception and memory (Bower, 1981; Blaney, 1986; see also Forgas & Bower, 1987), dissemination of information on treatments such as brain surgeries in the media might be problematic with regard to successful (i.e., balanced) knowledge transfer. Unbalanced knowledge reception is problematic in itself, but it may be particularly detrimental if it used as the basis of informed decisions or if it influences broader public opinion.

Accordingly, the present research aims at systematically investigating one feature often used in medical communication and media coverage making the presentation of medical information more vivid and, thereby, potentially even more emotion-eliciting: including testimonials in a report about a health-related topic (cf., Dillard, Fagerlin, Dal Cin, Zikmund-Fischer, & Ubel, 2010; Dillard, & Main, 2013; Lipkus, Green, & Marcus, 2003). Specifically, the current research investigated how reporting about a medical treatment from the first person perspective of a programmed patient versus a third person patient perspective affected recipients' emotions experienced with regard to the treatment, and how these emotions, in turn, affected recipients' memory performance.

The relation of narrative perspective, perspective taking and experienced emotions in medical communication

Narratives – accounts' of individuals either presented in first or third person perspective - are widely used in medical communication (cf. Winterbottom, Bekker, Conner, & Mooney, 2008). However, the specific perspective used to describe events in a report very much influences how these events are processed and comprehended by recipients (e.g., Ditman, Brunyé , Mahoney, & Taylor, 2010). Specifically, to facilitate understanding of others' experiences, recipients often mentally simulate the actions perceived (cf. Barsalou, 2008; see also Tettamanti, et al., 2005). Recent research indicates that this seems to be the case even for different modes of presentation (e.g., Fischer & Zwaan, 2008; Glenberg, 2007). Importantly, using different narrative pronouns appears to affect these processes, and recipients seem to take different perspectives depending on the pronoun used in a narrative (e.g., Ruby & Decety, 2001; Brunyé, Ditman, Mahoney, Augustyn, & Taylor, 2009). Specifically, Brunye and colleagues (2009) show that recipients of a text take an actor's perspective only when they find themselves directly addressed through being the subject of a sentence (indicated by the pronoun *I* in contrast to *s/he* used in the narrative, see also Papeo, Corradi-Dell'Acqua, & Rumiati, 2011).

Accordingly, using a first person perspective when reporting about certain events fosters closer relating of recipients to the protagonist. In the context of presentations of medical treatments involving severe surgery, using the first person perspective of a programmed patient who reports on his or her experiences with the treatment should foster adopting that patient's perspective compared to reports using a third person patient perspective. Research on perspective taking indicates that adopting another's perspective increases affective responses in the recipient regarding the target's experiences (e.g., Batson, et al., 1988), causing the recipient to experience similar emotions as the perspective-taking target (e.g., Batson & Shaw, 1991). Beyond that, perspective taking leads recipients to relate their own fate to that of the protagonist and share their emotional experiences (cf. Olderbak, Sassenrath, Keller & Wilhelm, 2014). Therefore, we expect that reports on interventions implying severe surgeries that use patient testimonials of programmed patients reporting from a first person perspective should

lead to stronger emotional reactions in recipients than reports using patient testimonials reporting from a third person perspective. More precisely, if the information that a patient feels disappointed and negative about a medical treatment is presented using first person perspective, the recipient of this information is more likely to take the patient's perspective and, thus, also feels negative regarding the treatment. However, this effect should be less likely when the same contents are reported using a patient's third person perspective.

Importantly, although the above described process should apply for emotions of both positive and negative valence, we expect the effects in the current research to be stronger for negative emotions, considering the research context of a serious incurable disease, where symptoms can only be alleviated but not be cured. Specifically, we expect presentations from a first person perspective to elicit stronger negative and weaker positive emotions, even if the programmed patients report positively about a treatment, because the positive effect of the treatment at best reduces suffering, but it does not cure the disease.

Considering the abundant evidence of mood congruency effects in memory performance (e.g., Bower, 1981; Blaney, 1986), it is very likely that negative emotions regarding a medical treatment fosters memory performance regarding negative contents related to that treatment. Accordingly, emotions elicited by the narrative perspective in medical communication affect medical knowledge formation as the likely affect memory performance with regard to the medical information. We thus consider recipients' emotional experiences with regard to the medical treatment as the process variable mediating the influence of narrative perspective on memory performance in medical communication.

Notably, recipients should resonate with the patient's experiences but not as if they themselves would directly suffer from the consequences of the invasive medical treatment. Hence, we predict that resonating with the patient's perspective affects perceivers' emotional state in terms of a distant affective experience but not a proximate emotional state. Therefore, emotions elicited in recipients should result in mood congruency (and not counter-regulatory) effects (cf. Sassenberg, Sassenrath, & Fetterman, 2015; Rothermund, Gast, & Wentura, 2011).

Medical communication: The case of Deep Brain Stimulation

We chose Deep Brain Stimulation (DBS) as specific invasive medical treatment to address the above elaborated hypotheses. Specifically, DBS refers to a surgical procedure of "stereotactically guided implantation of brain electrodes in subcortical key structures of the brain with the connection of these brain electrodes to subcutaneously implanted impulse generators" (Voges, Kiening, Krauss, Nikkhah, & Vesper, 2009, p. 669). Hence, patients undergo an implantation of electrodes in their head. This surgical intervention has to be performed while patients are awake (but anesthetized). Afterwards, electrodes can be activated by the patient when needed, resulting in the regulation of certain brain areas. DBS is used to treat a variety of disabling neurological symptoms, including symptoms related to essential tremor, Parkinson's disease, obsessive compulsive disorder and epilepsy. Although it can be quite helpful regarding some severe diseases (e.g., Parkinson's disease), its effectiveness concerning other diseases is at best controversial (cf. Südmeyer et al., 2012; Gilbert & Ovadia, 2011). In our view, reports on DBS are the perfect candidate to address our predictions, because DBS represents a highly innovative but controversially discussed medical treatment (Südmeyer et al., 2012), which has a high potential of eliciting strong negative emotions in recipients.

As elaborated above, we predict that disseminating information on DBS from a patient's first person perspective elicits stronger negative and weaker positive emotions towards DBS in the recipient than reports about a patient using third person perspective. Experiencing negative emotions with regard to DBS, in turn, should foster memory performance of negative DBS-related contents. In total, this should lead to an indirect effect of the narrative perspective on the recall of negative information via negative emotions.

We tested these predictions in an experiment. Specifically, we presented recipients DBS-related contents in an audio presentation mode and varied experimentally valence of DBS-related content (positive versus negative) as well as narrative perspective (first-person programmed patient perspective versus third person programmed patient perspective). We chose an auditory presentation mode, because it is a very common format of information dissemination on pertinent subjects (e.g. podcasts, radio programs on health-related topics, or

multi-media sections of online newspapers) and research suggests that auditory material elicits stronger emotions in recipients, since it allows for more vividness compared to written material (cf. Gitter, Kozel, & Mostofsky, 1972; Wogalter & Young, 1991). As dependent variables, we assessed recipients' emotions regarding the DBS-related information they received and we measured their memory performance with regarding the content of another text on DBS that participants in all conditions read after listening to the audio files.

Of note, we submitted the study plan of this experiment to the local Institutional Review Board and received their ethical approval prior to conducting the study (IRB number: LEK 2013/39/04).

Method

Participants and design.

One-hundred-and-eleven healthy individuals (university students; 85 female, 26 male, M_{age} = 23.28, SD_{age} = 3.89, range: 18–47) participated in an experiment with a 2 (narrative perspective: first person programmed patient perspective vs. third person programmed patient perspective) x 2 (valence of contents: positive vs. negative) between-subjects design and were randomly assigned to the four different conditions. Precisely, random assignment to conditions resulted in the assignment of 28 participants to the first person patient perspective / positive valence condition, 29 participants to the participants to the first person patient perspective / negative valence condition, 27 participants to the third person patient perspective / positive valence condition, and 27 third person patient perspective / negative valence condition. Importantly, only individuals who indicated not to have any prior knowledge regarding DBS were included in this study. The study was the second in a one-hour experimental session that took place in the laboratory. Manipulations used in the different studies were cross-matched and the manipulations of the study that was run before the current one did not moderate the present findings. Participants were compensated with €8 (approximately $9) for participating in the whole session.

Procedure and materials.

The study took place in a laboratory with private and soundproof cubicles and all instructions and measures were displayed on a computer screen. First, participants listened via headphones to an audio file on DBS providing information about patients' experiences with DBS. Depending on the condition, this text was either presented from a programmed patient's first person perspective (e.g., "The operation had been really hard. It lasted nearly ten hours. The drilling in my head was particularly hard for me. […] I compared myself to a dog whose doghouse is attacked with a chain saw.") or from a programmed third person patient perspective ("The operation lasts nearly ten hours and is really hard for patients. While they are fully conscious, their head is drilled open […]. The drilling and the resulting vibrations on the head can be experienced by patients as physical violence."). Text contents were either mainly positive or negative and kept comparable in text length and word count. Moreover, both texts of negative and positive valence had the same amount of positive and or negative pieces of information, respectively. All texts were recorded under identical technical conditions using the same speaker for all texts who was naïve regarding research goals and hypotheses. Also, all measures necessary were taken to ensure that participants listened to the audio material under identical conditions. After having listened to the text, participants' emotions regarding DBS were measured.

Thereafter, all participants read the same text about the state of the art of DBS application to Parkinson patients (450 words). This text consisted of five paragraphs of which the first paragraph presented neutral information (e.g., DBS is a neurosurgical intervention; electrodes restore disturbed functions) whereas the following four paragraphs presented alternately positive and negative information (e.g., *positive:* DBS is being celebrated as innovative therapy with striking success; patients' psychological well-being increases and they rejoice in their lives; *negative:* DBS only worked for 50% of the patients and there is no improvement for the rest; patients are awake during the operation and are aware that their head is being opened). After participants had read the text, filler items were assessed. Specifically, participants answered questions regarding their interest in the topic of DBS (2 items), their attitude regarding DBS (3 items), plausibility and comprehensibility of the text (5

items) and finally their ability to concentrate on the text, motivation to read the text and how much fun it was to read the text. These filler items were intended to be meaningful for participants in the study context but were not of theoretical interest. Accordingly, answers to these items are not analyzed and thus not included into the results section. The rationale behind including the respective filler items was to increase temporal distance between the manipulation of narrative perspective and valence of contents which we did by letting participants listen to different reports on DBS via headphones and the second text on DBS that participants read and which they were asked to remember afterwards.

Subsequently, participants worked on a free recall task regarding the text they had just read. The free recall task had not been announced upfront to prevent participants from making up their own hypotheses on how the text should be received. Participants were asked to note down what they had learned about DBS. Finally, participants were thanked, debriefed, and compensated.

Measures.

Emotions with regard to DBS. Participants' positive and negative activating and non-activating emotions with regard to DBS were each assessed with six items (cf. Sassenberg & Hansen, 2007; positive: *relaxed, excited, eased, enthusiastic, optimistic, relieved;* α = .93; negative: *scared, disappointed, afraid, sad, depressed, disturbed;* α = .91). To capture the distant emotional experience (rather than hot emotions), all items were preceded by the sentence "When I am thinking about DBS, I am …" and used a 9-point Likert scale ranging from 1 *(does not apply at all)* to 9 *(completely applies)*.

Valence of recalled information. To determine valence of the information recalled in the free recall task, participants' answers were coded by two independent raters. For the coding scheme, 77 meaningful pieces of information, the maximum possible amount of information participants could have recalled, were extracted from the written text. These pieces of information were classified into a neutral (15 pieces), positive (31 pieces), and negative category (31 pieces). Specifically, raters used a coding scheme that was developed before conducting the study and was based on the text containing the DBS-related information

participants read in the study and were asked to remember. Specifically, the 77 meaningful pieces of information constituted of information that was explicitly mentioned in the text and referred to DBS. Rater coded information mentioned by participants that was either literally mentioned in the text or was synonymous to the mentioned information in the text. Raters counted the number of pieces of information that participants had recalled and categorized them as neutral, positive, or negative. Interrater reliability based on the counts of pieces of information ranged from r (111) = .83 to r (111) = .97 which corresponds to (almost) perfect interrater reliability according to Landis & Koch (1977). Ratings were averaged across raters, participants thus recalled on average 11.13 (SD = 4.74) pieces of information in total (neutral: M = 5.11, SD = 1.74; positive: M = 1.41, SD = 1.33; negative: M = 4.61, SD = 3.11).

Data analysis.

First, to test the impact of our manipulated factors on the emotions experienced by recipients we conducted a mixed analysis of variance with narrative perspective (first person patient perspective vs. third person patient perspective) and valence of contents (positive vs. negative) as between-subjects factors and valence of experienced emotions as within-subject factor. The relation of experienced emotions and memory for DBS-related content was analyzed using correlational analysis. Finally, to test for the indirect effects, we used the SPSS macro provided by Preacher and Hayes (2008).

Results

We hypothesized that programmed patients' reports from a first person patient perspective elicit stronger emotions than reports from a third person patient perspective and that more negative and less positive emotions are elicited in recipients considering the contents of patients' reports. Additionally, we hypothesized that, due to the elicited negative emotions, more negative information on DBS is recalled when the report used a patient first person perspective compared to a patient third person perspective.

Emotions with regard to DBS. Addressing participants' emotions regarding DBS, we first conducted a mixed analysis of variance (ANOVA) with valence of emotions (positive vs. negative) as within-subjects factor and narrative perspective (first person patient perspective

vs. third person patient perspective) and valence of contents (positive vs. negative) as between-subjects factors. Means and standard deviations for the below presented effects are depicted in Table 1. Analysis revealed that reports with positive contents elicited more positive emotions than reports with negative contents, F (1, 107) = 53.61, $p < .001$, $\eta_p^2 = .334$. In contrast, reports with negative contents elicited more negative emotions than reports with positive contents, F (1, 107) = 81.03, $p < .001$, $\eta_p^2 = .431$. Importantly and as predicted, analysis also yielded a significant valence of emotions × narrative perspective interaction, F (1, 107) = 8.92, $p = .003$, $\eta_p^2 = .077$. Reports from a first person patient perspective elicited more negative emotions than reports from a third person patient perspective, F (1, 107) = 5.05, $p = .027$, $\eta_p^2 = .045$. Correspondingly, reports from first person patient perspective elicited less positive emotions than reports from third person patient perspective, F (1, 107) = 6.18, $p = .014$, $\eta_p^2 = .055$. No other main effects or interaction effects reached statistical significance, all F's < 2.4, all p's > .13.[1]

Relation of emotion and memory for information on DBS. Concerning the relation of emotions elicited and memory for DBS-related information we predicted that negative emotions should be related to a better memory for negative information. Correlational analyses testing this prediction revealed that negative emotions were related to enhanced memory performance for pieces of negative DBS-related information ($r(111) = .32$, $p < .001$; $R^2 = .10$). This relation corresponds to a mild to moderate relation (both variables share about 10% of variance). No significant correlation was found for negative emotions and memory for pieces of positive DBS-related information (r(111) < .001). Unexpectedly, positive DBS-related emotions were inversely related to enhanced memory performance for pieces of negative DBS-related information ($r(111) = -.25$, $p = .009$; $R^2 = .06$). Here, the mount of shared variance is even less (about 6%). Again, no relation was found for positive emotions and memory for positive DBS-related information ($r(111) = -.055$, $p = .565$). To sum up, both positive and negative DBS-related emotions experienced by the recipient were related to recipients' memory performance for pieces of negative DBS-related information. No relation was found for positive or negative emotion and memory performance for pieces of positive DBS-related information.

Indirect effect analysis of narrative perspective on memory via emotion. In a last step, we tested our prediction that recipients recalled more negative information on DBS because they experienced stronger negative emotions and less positive emotions when contents were presented in first person patient perspective compared to third person patient perspective.

The indirect effect analyses with narrative perspective as independent variable, negative and positive emotions as mediating variables, and recall of negative DBS-related pieces of information as dependent variable revealed a significant indirect effect for negative emotions (i.e., the confidence interval excluded zero). That is, recipients of a text using first person patient perspective remembered more negative information because they experienced stronger negative emotions with regard to DBS than recipients of a text using third person patient perspective (b = 0.135, SE = 0.107, $CI_{b,95\%}$[0.0040; 0.4578]. No effect was found for positive emotions as mediating variable (i.e., the confidence interval included zero, b = 0.0481, SE = 0.088, $CI_{b,95\%}$ [-0.0944; 0.2786] see Figure 1 for details).[2]

In sum, results of this experiment demonstrate that narrative perspective not only affects emotions elicited in recipients but also influences their memory performance with regard to the presented contents. Specifically, recipients of DBS-related content, which was presented using the first person perspective of a programmed patient, experienced stronger negative emotions than recipients learning about the content from a third person patient perspective. Beyond that, recipients also remembered more negative information regarding DBS because they experienced stronger negative emotions.

General discussion

The present research yields empirical evidence that the narrative perspective in reports of a programmed patients experiences with DBS as medical treatment not only affects emotions elicited in the recipient but also influences memory performance regarding the reported contents. Presenting information about this invasive medical treatment using a programmed patient reporting about his/her personal experience with DBS from a first person perspective (compared to a third person perspective), led recipients to experience stronger negative

emotions which, in turn, fostered memory performance with regard to negative DBS-related contents. Thereby, recipients' emotions, influences by the narrative perspective chosen in medical communication, influenced medical knowledge formation.

The current findings indicate that reports using testimonials presenting medical information from a first person perspective led recipients to resonate with the fate of the reporting person and, thus, to share his/her affective experiences. Moreover, information processing and thus knowledge formation is influenced by these affective experiences. Recipients remember more information consistent with the affective tone of the experiences of the target whose perspective they had taken. This implication of the present research is important with regard to the fact that medical advances and developments are very often disseminated using testimonials (i.e., first person reports of persons concerned). This may make controversial scientific advancements (e.g. the use of DBS as invasive medical treatment) more vivid and comprehensive for a broader audience but it has important detriments. Recipients likely resonate with the perspective of the person concerned, making that person's experiences more tangible and real. Thereby, recipients may process the informational content in a biased way – remembering mainly negative contents when the person concerned reports about DBS in a personalized way. Now, a biased knowledge formation as a result of biased information transfer of scientific developments to the public may lead to biased public opinion. This, in turn, may affect politics regarding the promotion of certain scientific developments. To be more precise, if public opinion is, for example, negatively biased regarding DBS this bias may be transferred to politicians deciding not to further promote research and development of the respective medical treatment simply because potential voters do not perceive the treatment worth promoting and politicians thus may apprehend not being (re)elected. This could have unfortunate consequences considering the existent positive effects of DBS for patients which might even be promoted and carved out by future research. Consequentially, journalists should consider this potential detrimental effect of reporting as vivid and tangible about medical advancements (by including personalized testimonials). Instead, they might stay with a technical and matter-of-fact manner of reporting about these topics to avoid misperceptions in recipients.

This may be not as easy and straight forward as it sounds considering the complexity of the respective topics and journalists aim of receiving as many reads and as wide an audience as possible which is certainly be more likely achieved when reporting vividly and concretely instead of in a technical and matter-of-fact manner.

Besides the practical implications, the present findings also have theoretical significance as they correspond to and extend previous research on the effects of narratives in medical education and health behavior change. Specifically, research by Lipkus and colleagues (2003) indicates that recipients of a specific narrative report increased perceptions of severity of a certain disease which was positively associated with completing a certain screening test regarding the disease six months later. Hence, their research showed that self-reported perceptions can be related to future behavior. Importantly, our findings present candidates for mechanisms underlying this effect of perception on future behavior observed by Lipkus and colleagues (2003) since we assessed memory performance. Specifically, we showed how using testimonials affected recipients' memory regarding the transmitted information. Thereby, our research indicates that using testimonials not only affects short-term self-reported intentions of behavioral change but also affected what participants remember regarding certain medical information. Possibly, what recipients remember about certain medical information has an impact on their future behavior as they might form an informed decision regarding certain medical treatments (in our case DBS) based on what they remember about the treatment. Nonetheless, to further corroborate significance of the present findings, future research should test whether these findings also hold for samples involving a more representative and general sample.

The present findings certainly have some limitations and should be seen as the first step in systematically investigating prominent features of reports used in medical education and media coverage on scientific advancements. Specifically, one might argue that the sample used in the present experiment did not consist of individuals personally concerned with DBS (i.e., a young sample involving healthy university students). This may also be reflected in the fact that recall of DBS-related information is generally rather low across the sample (about 14 percent) which

may be due to reduced motivation and lack of personal relevance. Moreover, the memory measure relies on a surprise free recall, which reduces the expected recall rate. Finally, when placing the present findings in the context of uninvolved individuals reading a newspaper article or listening to a podcast on DBS, remembering 14 percent of the presented information is not that unsatisfying.

Beyond that, including a sample with participants who are not a priori concerned with medical issues linked to DBS might also present an asset. Specifically, participants who have no personal reference to DBS were obviously still moved by the report of a patient undergoing treatment with DBS as indicated by their emotional experiences. Moreover, this emotional experience even affected their information processing regarding DBS as they remembered more information consistent with their affective experiences. As elaborated above, biased information transfer of scientific developments to the public may lead to biased public opinion and this, in turn, may affect politics regarding the promotion of certain scientific developments. Ironically, public opinion most likely represents the opinion of a majority of individuals who are not personally concerned with DBS. Nevertheless they from their opinion and thus may have an impact public policies and political decisions as delineated above.

Taken together, the current research indicates that a prominent technique used to make scientific advancements and developments more accessible to a broader public has indeed the intended effect – but goes even beyond. Using first person perspective of a person exposed to health information very likely induces perspective taking, thereby making the reported contents more vivid and either appealing or repulsive for the recipient. However, this also leads the recipient to process the incoming information in a biased way, namely as if being in the position of the person concerned. As already mentioned earlier on, this biased information processing may by problematic when the processed information is used as a basis of informed decisions. Moreover, public opinion may be biased due to media coverage on the respective topic. Possibly, this will affect politics with regard to the promotion of certain fields of medical or life sciences (e.g. invasive medical treatments).

Footnotes

[1] For exploratory reasons, we also assessed specific emotions regarding DBS: anger (*hostile, angry, annoyed;* α = .86); threat (*helpless, threatened, without control*; α = .70; anxiety (*scared, frightened, full of fear;* α = .89), hope (*hopeful, of good cheer, confident;* α = .95), and disgust (*disgusting, disgusted; r* = .78). For anger, analyses revealed a main effect for narrative perspective, F (1, 107) = 8.28, p = .005, η_p^2 = .072, a main effect for valence of contents, F (1, 107) = 23.94, p < .001, η_p^2 = .183, as well as a marginal narrative perspective × valence of contents interaction, F (1, 107) = 3.91, p = .051, η_p^2 = .035. With negative contents, the first person patient perspective elicited more anger (M = 4.02, SD = 2.27) than the third person patient perspective (M = 2.54, SD = 1.61), F (1, 107) = 11.88, p = .001, η_p^2 = .100. In contrast, for the positive contents, there was no difference between the first person patient perspective (M = 1.93, SD = 1.27) and the third person patient perspective (M = 1.65, SD = 0.89), F (1, 107) < 1, *ns*. For threat, the analysis revealed a main effect for narrative perspective, F (1, 107) = 7.45, p = .007, η_p^2 = .065, and a main effect for valence of contents, F (1, 107) = 24.27, p < .001, η_p^2 = .185, but no interaction effect, F (1, 107) < 1, *ns*. Reports from the first person patient perspective elicited more threat (M = 4.22, SD = 2.23) than reports from the third person patient perspective (M = 3.26, SD = 1.82). Moreover, reports with negative contents elicited more threat (M = 4.61, SD = 2.01) than reports with positive contents (M = 2.87, SD = 1.80).

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Competing interests

The authors declare no competing interest.

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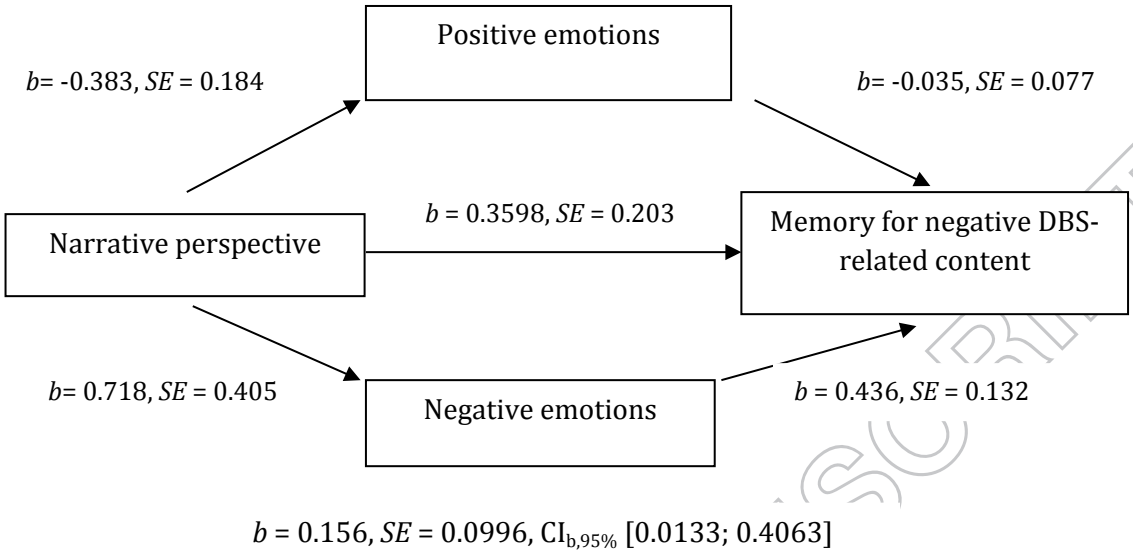

Figure 1: Unstandardized coefficients (b) and standard errors (SE) of bootstrapping analyses of the effect of narrative perspective on memory for negative DBS-related contents via elicited negative emotions

Table 1

Means and standard deviations (in parentheses) for DBS-related emotions indicated by recipients (N= 111)

	Valence of DBS-related emotions	
	positive	negative
Information presented from first person patient perspective	4.01 (1.79)	4.31 (2.25)
Information presented from third person patient perspective	4.78 (2.07)	3.59 (2.00)
Positively valenced information presented	5.50 (1.71)	2.55 (1.31)
Negatively valenced information presented	3.29 (1.54)	5.34 (1.92)

About the authors

Claudia Sassenrath is currently a lecturer at the University of Ulm. In her research, Claudia investigates how emotions affect prosocial tendencies, or basic information processing. She is also interested in applications of the basic social psychological theories to applied domains such as health psychology or health education and behavior. This is how the present research relates to her other projects – it represents an application of basic findings (the effect of emotions on memory performance) in applied health-related setting.

Kai Sassenberg is head of the Social Processes Lab at the Knowledge Media Research Center and full professor at the University of Tübingen. Together with his team, he studies the impact of social relationships on computer-mediated knowledge exchange and social cooperation.

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Public Interest statement

Testimonials, that is to say personal reports from persons concerned, are widely used in medical communication and health care intervention programs. Testimonials make medical communication more vivid and tangible thereby fostering health behavior changes. The present research systematically investigated the impact of one feature of testimonials, namely narrative perspective used in the testimonial report. One study with healthy young individuals revealed that testimonials reporting from a first-person perspective of a programmed patient regarding an invasive medical treatment (Deep Brain Stimulation) elicited stronger negative emotions in recipients regarding the treatment than testimonials reporting from a third-person perspective of a patient. Importantly, recipients' emotions also affect what they remembered regarding the treatment; those who learned about the treatment from a first-person perspective not only had more negative emotions but also remembered more negative information regarding the treatment than those who learned about the treatment from a third-person perspective.