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"Don't Make My Mistake": On the Processing of Narrative Fear Appeals

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In this study, we examined the mechanism underlying the processing of narrative fear appeals. Participants (*N* = 564) read a story about a protagonist dealing with the consequences of cancer (Study 1: testicular cancer; Study 2: breast cancer; Study 3: skin cancer). Path analysis revealed that (1) attitude and behavioral intention toward performing self-exams were directly and positively associated with a form of transportation we identified as attention-focused transportation; (2) this form of transportation was positively associated with four emotions (fear, sadness, surprise, and compassion), whereas identification positively correlated with only one emotion (compassion); and (3) only the emotion of fear was a predictor of intention to perform self-exams. Taken together, these findings suggest that attention-focused transportation is a very important factor in the processing of narrative fear appeals, and that it can even, under some circumstances, replace the persuasive power of fear.

Keywords: fear appeal, narrative, emotion, attention, transportation, identification, persuasion, health communication

Smoking can cause lung cancer, eating unhealthy food can lead to heart disease, and not wearing a seatbelt can result in death. By depicting the negative consequences of certain kinds of behavior, health practitioners try to frighten people into healthy behavior. A typical example of fear appeals is the graphic

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warning on cigarette packages, consisting of a picture with a single sentence. In one of such warnings, which recently appeared in the Netherlands, a picture of two crying people standing above a small coffin is accompanied by the text, "Smoking can kill your unborn baby." This message conjures up a small story about a couple that expected a baby, which eventually died because the mother smoked. This is an illustration of the fact that a message does not have to completely explicate a story to be perceived as narrative, as "our narrative perception stands ready to be activated in order to give us a frame or context for even the most static and uneventful scenes" (Abbott, 2002, p. 11). If narrative is broadly defined as "a symbolic representation of events involving one or more characters" (Bilandzic & Busselle, 2013, p. 201), many more of these single-picture health messages may actually be perceived as fear-inducing narratives.

Fear appeals often include testimonials by people who have dealt with the threat of the message themselves. These victim statements, and many other fear appeals used in practice or research may be considered narratives (cf., Busselle & Bilandzic, 2009). There is a large body of literature on the processing of health-related narratives, in which variables such as *transportation* into the story and *identification* with the main characters play a central role in changing attitudes and intentions of the reader (e.g., Green & Brock, 2000; Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013). However, it is yet unclear how these narrative variables should be placed in prominent models describing the processing of fear appeals in general, such as the extended parallel process model (EPPM; Witte, 1992). The present study tries to clarify the role of transportation and identification in processing fear appeals by investigating (1) how transportation and identification are related to fear and also other emotions that may be elicited during the processing of narratives, and (2) how these narrative variables and emotions are associated with persuasive outcomes of narrative fear appeals.

Narrative Persuasion

There is accumulating evidence that narratives can have an impact on behavioral intentions and attitudes of receivers (e.g., Braddock & Dillard, 2016). Research has identified two variables that are relevant for narrative persuasion: transportation (Green & Brock, 2000) and identification (De Graaf, Hoeken, Sanders, & Beentjes, 2012). Green and Brock (2000) define transportation as "a convergent process, where all mental systems and capacities become focused on events occurring in the narrative" (p. 701). Identification can be seen as "a process that consists of increasing loss of self-awareness and its temporary replacement with heightened emotional and cognitive connections with a character" (Cohen, 2001, p. 251). Both refer to the degree of involvement in the story, but whereas transportation relates to the story as a whole, identification more specifically relates to the characters who play a role in the story (Tal-Or & Cohen, 2010).

It has been suggested that transportation and identification have an impact on attitudes and intentions by evoking (strong) emotional responses (Cohen, 2001; Green & Brock, 2000), but it is not quite clear yet what the interplay is among narrative variables, emotions, and persuasive outcomes. Murphy, Frank, Moran, and Patnoe-Woodley (2011), for example, found that identification had an influence on transportation, which led to stronger positive and negative emotions. Transportation and emotions, in turn, were related to changes in attitudes and behavior (see also Murphy et al., 2013). Banerjee and Greene (2012) did not study effects of identification, but found that some emotions (i.e.,

sadness and contentment) mediate the relation between transportation and anti-cocaine expectancies. Hoeken and Sinkeldam (2014), on the other hand, did not study effects of transportation, but provided empirical evidence for the importance of identification in the process by showing that emotions mediate the relation between identification and the attitude of readers.

In addition to contributing to the current discussion on the roles of identification, transportation, and emotions in narrative persuasion, in the current study, we wanted to find out whether, and to what extent, transportation and identification are also associated with fear and other emotions reported in studies on fear appeals. These studies have shown a large variety in the stimuli they used: from written testimonials (e.g., Banerjee & Greene, 2012) to public service announcements (e.g., Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996). As argued in the Introduction, many of these fear appeals can actually be perceived as narratives.

Following Dillard and Nabi (2006; Nabi, 2010), we adopted an appraisal approach of emotions, in which there is a set of discrete emotions, which are the consequence of the cognitive appraisal of a given event (i.e., what is the significance and meaning of the event for an individual), and have different behavioral components called *action tendencies* (Lazarus, 1991). These action tendencies, which can be seen as precursors to behavioral intentions, are predictive of behavioral outcomes (Nabi, 2010).

Emotions in Narrative Fear Appeals

To study the role of emotions in narrative persuasion, messages concerning cancer seem appropriate, as they are likely to arouse strong emotions (Dillard & Nabi, 2006). In this context, four emotions seem especially relevant: fear, sadness, surprise, and compassion. Fear, of course, is central, as reading about a protagonist who has to deal with the negative consequences of not performing a certain behavior (in this case, self-exams) can scare. Sadness is likely to be felt by reading about a protagonist who is suffering. Sadness is the result of an appraisal that there is a negative situation, but there is no external party to blame for it. This is likely the case with cancer, the health topic of our study. If there were an external agent to blame, anger would be more likely to be felt than sadness (Myrick, 2015). The third emotion is surprise. Surprise is the result of experiencing novelty (Dillard & Nabi, 2006), and can thus be felt when receiving new information about the consequences of different types of cancer or the recommended self-exams. In addition, receiving unexpected information about the susceptibility to cancer can evoke surprise (Alden, Mukherjee, & Hoyer, 2000).

Finally, narrative fear appeals might evoke feelings of compassion because of the narrative format that addresses the perspective of one or more protagonists (Oliver, Dillard, Bae, & Tamul, 2012). Compassion is an emotional state evoked by perceiving another person's suffering (Goetz, Keltner, & Simon-Thomas, 2010; Lazarus, 1991). When reading about a protagonist who suffers, readers who identify with this protagonist might thus feel compassion. Transportation can also lead to the arousal of compassion, as shown by Oliver et al. (2012).

In terms of hypotheses, we expected that transportation into the story — more specifically attention-focused transportation, which is discussed in detail in the Measures section — and identification

with the protagonist would be positively associated with reported fear, sadness, surprise, and compassion. Furthermore, we expected that attention-focused transportation and identification would be reciprocally related, as suggested by Tal-Or and Cohen (2010) and Murphy et al. (2011).

H1: Attention-focused transportation and identification would be reciprocally related.

H2: Attention-focused transportation (H2a) and identification (H2b) would be positively associated with reported fear.

H3: Attention-focused transportation (H3a) and identification (H3b) would be positively associated with reported sadness.

H4: Attention-focused transportation (H4a) and identification (H4b) would be positively associated with reported surprise.

H5: Attention-focused transportation (H5a) and identification (H5b) would be positively associated with reported compassion.

The Persuasive Effects of Emotions

As mentioned, per emotion, different behavioral intentions can be predicted based on their action tendencies. The action tendency of fear is typically avoidance. But, as Dillard (1994) states, "sometimes avoidance is not possible and therefore actually altering the nature of the person–environment relationship is required. This is typically the aim of fear appeals" (p. 309). According to the EPPM (Witte, 1992), receivers have two ways to deal with fear: *fear control* (e.g., deny the risk) and *danger control* (e.g., actively reduce the risk). Witte (1998) proposes that, under the condition that perceived efficacy is high, fear indirectly influences danger control responses, as mediated by threat (Proposition 7 of EPPM). Ooms, Jansen, and Hoeks (2015), however, found evidence that fear can also have a direct, positive relation with behavioral intention that is not mediated by threat. Several meta-analyses have shown that high levels of fear are indeed associated with danger control (Tannenbaum et al., 2015; Witte & Allen, 2000). So, whether the fear–persuasion relationship is mediated by threat or not, we expected:

H6: Fear would be positively associated with attitude (H6a) and intention (H6b) if perceived efficacy were high (see Witte, 1992).

Based on the action tendency of sadness, which is withdrawal (Dillard et al., 1996), receivers can be expected to not want to take action. However, sadness can also encourage reflection on the consequences of failure to take preventive action (Dillard & Nabi, 2006), leading to acceptance of the message instead of rejection. Some studies have found negative effects of sadness on message acceptance (e.g., Banerjee & Greene, 2012), whereas others have reported positive effects of sadness on message acceptance (Dillard & Peck, 2000; Hoeken & Sinkeldam, 2014). In their review of the relations between discrete emotions and health outcomes, Consedine and Moskowitz (2007) state that sadness may

lead to a greater likelihood of detecting symptoms: Because sadness heightens awareness of health issues, receivers may feel more inclined to examine themselves. Therefore, we tentatively assumed:

H7: In a health-related context, sadness would be positively associated with attitude (H7a) and intention (H7b).

The action tendency of surprise is to focus (Dillard, 1996) or to orient (Silvia, 2009), which implies that receivers will try to process the message. Dillard and Peck (2000) found positive effects of surprise on message acceptance, just as Dillard and Nabi (2006) did when they replicated the earlier findings in a cancer-related context. Therefore, we assumed:

H8: Surprise would be positively associated with attitude (H8a) and intention (H8b).

The action tendency of compassion is a desire to help someone (Goetz et al., 2010; Lazarus, 1991). Oliver et al. (2012) showed that feelings of compassion positively changed attitudes toward stigmatized groups, suggesting that compassion really is an "other-oriented" emotion. Myrick and Oliver (2014) showed that compassion was positively related to both social and individual behavior. As compassion also involves feeling personal distress (Lazarus, 1991), it might result in receivers wanting to avoid such outcomes for themselves. Accordingly, we assumed:

H9: Compassion would be positively associated with attitude (H9a) and intention (H9b).

A final remark concerns the attitude–intention relationship. Various models of human behavior predict that attitude is an important determinant of intention (e.g., Fishbein & Yzer, 2003). The causal relation between attitude and intention has also been supported by several meta-analyses (e.g., Park, 2000). Hence, our last hypothesis was:

H10: Attitude would be positively associated with intention.

These hypotheses are summarized in the model in Figure 1. To test this model, we conducted three correlational studies (Study 1: testicular cancer; Study 2: breast cancer; Study 3: skin cancer) in which participants were presented with a narrative fear appeal and subsequently filled out a questionnaire with items measuring transportation, identification, attitude, and intention, and also the emotions they felt while reading the story.

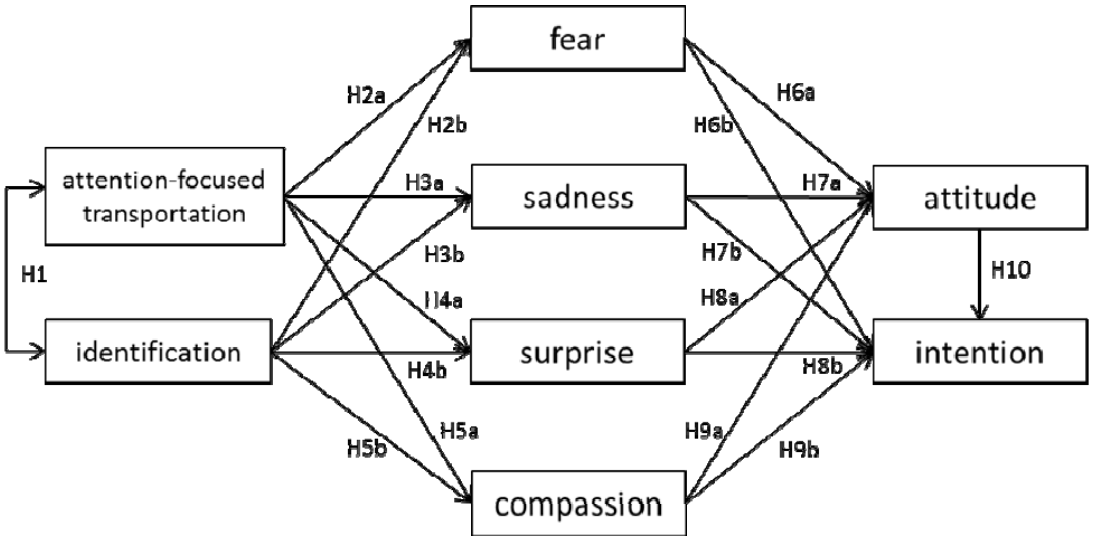

Figure 1. Hypothesized model.

Method

Materials

Three narrative fear appeal messages were developed, presenting a story about a student who has to deal with the severe consequences of cancer. In the last paragraph of the story, the student urges others to perform a self-exam every month to detect cancer at an early stage. In addition, information is provided on how to perform the self-exam, so as to promote high levels of perceived efficacy, which was required to test H6. The story was adapted from Morman (2000), who showed that his narrative about a young man with testicular cancer was able to arouse high levels of fear, threat, and efficacy.

To increase the generalizability of our results, we chose three cancer types, all of which can be detected by performing self-exams: testicular cancer (the most frequent form of cancer in young men), breast cancer (the most frequent form of cancer in women), and skin cancer (the most frequent form of cancer in adolescents).[1] The story on testicular cancer with a male protagonist was presented only to men, the story on breast cancer with a female protagonist was presented only to women, and the story on skin

[1] Statistics from Integraal Kankercentrum Nederland (Netherlands Comprehensive Cancer Organisation) at http://www.cijfersoverkanker.nl/meest-voorkomende-soorten-52.html, which are comparable with the numbers provided by the U.S. National Cancer Institute (https://www.cancer.gov/types/aya).

cancer was presented to women and men, creating a total of four research samples.[2] All of the stories were perceived as credible and comprehensible by our participants (mean scores of the different versions ranged from 4.8 to 5.9, clearly above midpoint "4" on a 7-point scale). An English translation of the narrative about testicular cancer is presented in Appendix A. Original Dutch materials are available on request from the first author.

Participants and Procedure

In total, 609 students, enrolled in undergraduate courses at the University of Groningen (the Netherlands) participated in the three studies. They voluntarily filled out a paper-and-pencil questionnaire consisting of a cover page with instructions, the narrative fear appeal, and questions on the measures reported, followed by some personal questions about the participant. After exclusion of respondents of whom one or more data points were missing, the final group consisted of 564 participants with a mean age of 19.97 years (*SD* = 2.16); 61.5% were women. Of all respondents, 24.1% reported having a family member or close friend who has experienced cancer. Table 1 lists the characteristics per study.

Table 1. Characterization of the Four Samples.

Characteristic	Breast cancer (women)	Testicular cancer (men)	Skin cancer (women)	Skin cancer (men)
n	106	88	241	129
Age (years), *M* (*SD*)	19.3 (1.64)	20.8 (2.58)	19.6 (1.73)	20.7 (2.55)
Experience with cancer (%)	46.2	5.7	22.8	20.9

Measures

Below, the approximate English translations are given of the original Dutch items. Unless noted otherwise, 7-point Likert scales were used, ranging from *strongly disagree* (1) to *strongly agree* (7). In the Results section, we report on the internal consistency of the items used to measure the variables in the model.

[2] There were two versions of the skin cancer story, one with a male protagonist and one with a female protagonist, which were shown to both male and female participants in a completely crossed design. Statistical analyses showed that gender of the protagonist did not significantly interact with gender of the participant regarding transportation and identification ($p > .38$); hence, data of the two versions were collapsed in our further analyses. This resulted in four comparable groups: men–testicular cancer, women–breast cancer, men–skin cancer, women–skin cancer.

To measure the emotions[3] of fear, sadness, surprise, and compassion, the questionnaire presented the statement "While reading the story, I felt [emotion]," followed by three or four items for each emotion. The response scale ranged from 1 (*not emotion word*) to 7 (*emotion word*). The following items were derived from Dillard et al. (1996): *afraid*, *scared*, *worried*, *anxious* for fear; *sad*, *dreary*, *dismal* for sadness; and *surprised*, *startled*, *astonished* for surprise. Based on Oliver et al. (2012), we took the items *pity*, *compassion*, and *sympathy* to measure compassion.

Different validated questionnaires are available for the measurement of transportation, of which the Transportation Scale (Green & Brock, 2000) and the Narrative Engagement Scale (Busselle & Bilandzic, 2009) are probably used most often.[4] However, not all items of transportation included in these questionnaires were relevant for our study because of the specific nature of our story: a one-page personal story on the experiences with cancer. Questions such as "The program/story created a new world, and then that world suddenly disappeared when the program/story ended" from Busselle and Bilandzic (2009, p. 337) did not seem relevant because of the minimal length of our stimulus. In addition, a question such as "The events in the narrative are relevant *to my everyday life* [emphasis added]" from Green and Brock (2000, p. 704) seemed not very useful to ask a healthy person. Choosing only transportation-related items that were suitable for our story resulted in the following set: "While I was reading the narrative, activity going on in the room around me was on my mind" (reverse-scored), "I was mentally involved in the narrative while reading it," and "I wanted to learn how the narrative ended" (from Green & Brock, 2000, p. 704), and two items that can be found in both Green and Brock (2000, p. 704) and Busselle and Bilandzic (2009, p. 337)—"I found my mind wandering while reading the narrative" (reverse-scored) and "The narrative affected me emotionally." Furthermore, we added one item from De Graaf et al. (2012), who also based their items on the Transportation Scale of Green and Brock: "My attention was fully captured by the story." Within this set, the focus lies on attention items, excluding those focusing on imagery (see Green & Brock, 2000) or narrative presence (see Busselle & Bilandzic, 2009). We therefore labeled our measure *attention-focused transportation* (AFT). Moyer-Gusé and Nabi (2010) used a comparable measure (our five items with two extra items) to measure transportation.

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[3] It must be noted that only self-reported measures were used. Although self-reported emotions can be valid, especially when it concerns current emotion states (Mauss & Robinson, 2009), it might also be interesting to involve continuous measures. Ordonana, González-Javier, Espín-López, and Gómez-Amor (2009), for example, applied a psychophysiological perspective to the study of fear appeals by measuring heart rate and skin conductance. These measures, however, showed no significant relation with reported fear or intentions, indicating that "psychophysiological reactions to fear appeals are probably a bit more complex" (Ordonana et al., p. 210). In their review of emotion measures, Mauss and Robinson (2009) also state that self-reported and physiological measures of emotions cannot be assumed to be interchangeable. Furthermore, physiological measures appeared to be better in establishing valence and arousal instead of identifying discrete emotions. Especially this latter fact complicates the use of psychophysiological measures in studies that try to predict specific emotional responses, as we did in our study.

[4] More recently, the Transportation Scale–Short Form (Appel, Gnambs, Richter, & Green, 2015) has been introduced, but that questionnaire was published only after we had already started gathering our data.

Identification was assessed with three items from Tal-Or and Cohen (2010), namely, "While reading the narrative, I could feel the emotions *X* portrayed," "I think I have a good understanding of *X*," and "I felt I could really get inside *X*'s head" (p. 415). The remaining two items of the instrument used by Tal-Or and Cohen were not applicable to the relatively short stories that were used here as stimuli.

Attitude toward performing self-exams was measured by asking participants by means of semantic differentials how *useful*, *good*, *important*, and *effective* they found self-exams (De Hoog, Stroebe, & De Wit, 2008). Intention to perform self-exams was measured by three items ("In the next half year I plan to/intend to/will perform the self-exam monthly") following Fishbein and Ajzen (2010).

To check whether the stories produced the required levels of efficacy, we also measured self-efficacy and response efficacy. The items for both concepts were based on the Risk Behavior Diagnosis Scale, developed by Witte, Cameron, McKeon, and Berkowitz (1996). Self-efficacy was measured with three items: "I am able to perform self-exams to detect *X* cancer," "Performing self-exams to detect *X* cancer is easy to do," and "I can perform self-exams to detect *X* cancer." Cronbach's alpha for these three items was good (α = .90). Response efficacy was measured with two items in conformity with the Risk Behavior Diagnosis Scale: "Performing self-exams works in detecting *X* cancer in an early stage" and "Self-exams are effective in detecting *X* cancer in an early stage." The third response efficacy item of the Risk Behavior Diagnosis Scale asks, "If I [do recommended response], I am less likely to get [health threat]." This statement, however, could not be applied to the types of cancer used in the stories: Self-exams are used to detect the disease, but cannot prevent it. Instead, we added two items from Ruiter, Verplanken, De Cremer, and Kok (2004): "The performance of self-exams will increase the chances to detect *X* cancer in an early stage" and "Detecting *X* cancer in an early stage strongly improves the chances of full recovery." Cronbach's alpha for these four items was satisfactory (α = .68).

Data Analysis

We analyzed the data in a number of steps. First, prior to scale construction, a confirmatory factor analysis (on data from the four samples combined) was conducted on all items of the variables in the model. The second step was finding out whether one single model would fit all four samples, taking the data of the complete group as a starting point. When we found such a model, we conducted further analyses to check for significant differences between the four different samples by estimating a multigroup model (cf. Wang, Jackson, Gaskin, & Wang, 2014). For all analyses, maximum likelihood estimation using AMOS 23.0 was employed. Following Kline (2005), we considered model fit to be adequate if (a) the model chi-square divided by its degrees of freedom (χ^2/df) was less than 3.0, (b) the comparative fit index (*CFI*) exceeded .90, (c) the standardized root mean square residual (*SRMR*) was less than .10, and (d) the root mean square error of approximation (*RMSEA*) was lower than .08.

Results

Measurement Model

To assess content validity, we conducted a confirmatory factor analysis. One item ("I found my mind wandering while reading the narrative") was removed because of a low factor loading (.07). Furthermore, the standardized residual covariance matrix showed that one item (*anxious*) produced large residual covariances with multiple other items, particularly with an item of fear (*worried*). In view of the semantic similarity between *anxious* and *worried*, *anxious* was removed. Factor loadings of the remaining items ranged from .64 to .96, and correlations between the latent factors did not exceed .85, satisfying the criteria for a correct model (Kline, 2005). The final measurement model (see Figure 2) yielded a good fit for the complete group: $\chi^2(296) = 546.40$; $\chi^2/df = 1.87$; *CFI* = .979, *SRMR* = .036; *RMSEA* = .039, 90% *CI* [.034, 044], $p = 1.00$. Model fit was also satisfactory across the four separate samples.[5] Consistent with the results of the confirmatory factor analysis, variable scores were calculated by averaging the underlying item scores. Appendix B displays descriptive statistics, Cronbach's alphas, and correlations for all variables ($N = 564$).

Test of the Hypothesized Model

Our next step was to test the hypothesized model (as depicted in Figure 1) in the complete group as well as in each sample separately. According to Byrne (2001), model fit should be evaluated by focusing on the model as a whole and on the individual parameter estimates. Fit indices indicated that the specified path model was consistent neither with the data of the complete group nor with the data of the separate samples, as none of these satisfied the proposed criteria, with the possible exception of the breast cancer study (see Table 2).

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[5]For men on testicular cancer: $\chi^2(296) = 417.97$; $\chi^2/df = 1.41$; *CFI* = .931; *SRMR* = .074; *RMSEA* = .069, 90% *CI* [.053, .084], $p = .029$. For women on breast cancer: $\chi^2(296) = 399.88$; $\chi^2/df = 1.35$; *CFI* = .940; *SRMR* = .068; *RMSEA* = .058, 90% *CI* [.042, .072], $p = .190$. For men on skin cancer: $\chi^2(296) = 443.65$; $\chi^2/df = 1.50$; *CFI* = .942; *SRMR* = .062; *RMSEA* = .062, 90% *CI* [.050, .074], $p = .049$. For women on skin cancer: $\chi^2(296) = 438.60$; $\chi^2/df = 1.48$; *CFI* = .974; *SRMR* = .040; *RMSEA* = .045, 90% *CI* [.036, .053], $p = .834$.

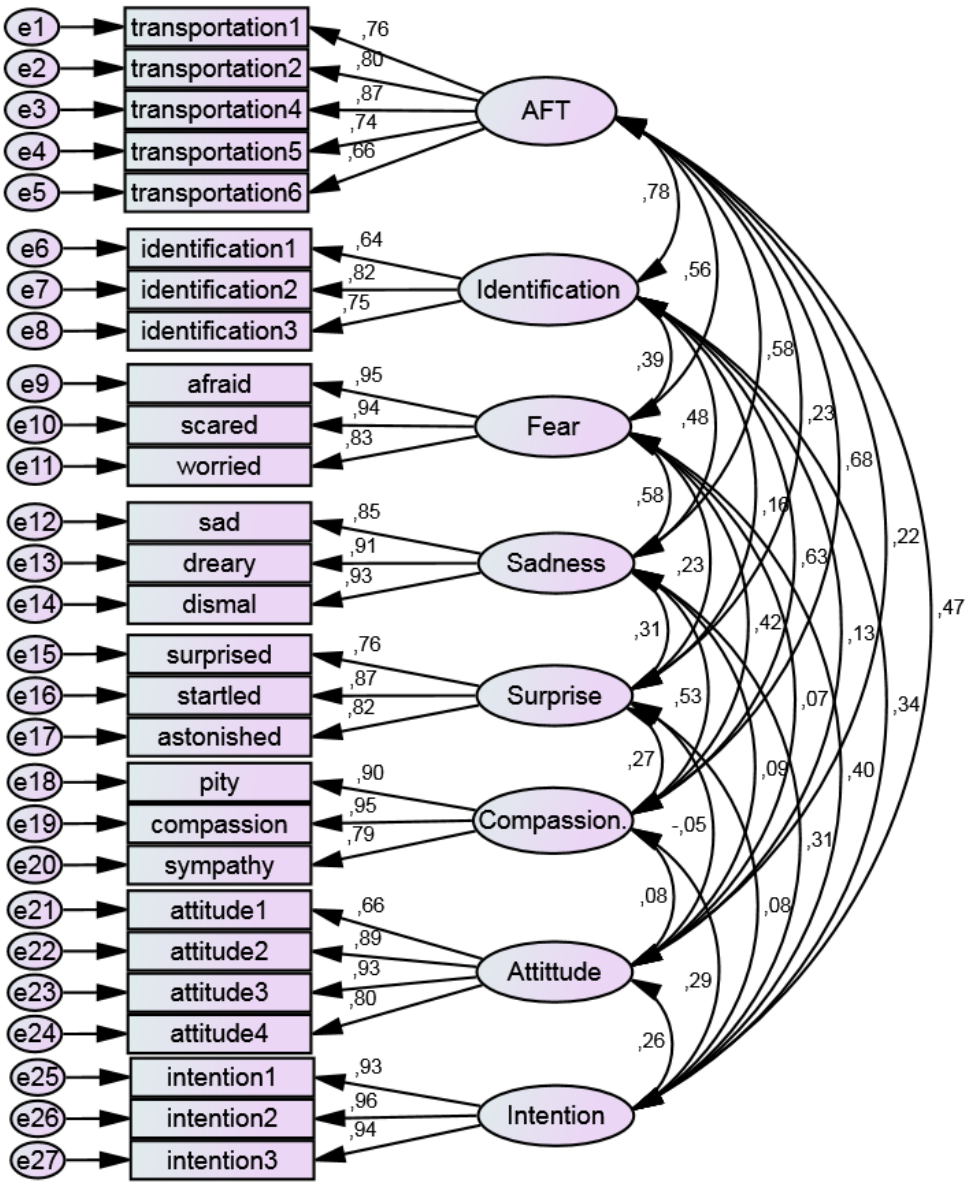

Figure 2. Final measurement model, based on data of complete group (N = 564). AFT = attention-focused transportation.

Table 2. Fit Indices of the Hypothesized Model.

Group	χ^2	*df*	χ^2/df	*CFI*	*SRMR*	*RMSEA*	90% *CI*	*p*
Recommended values	–	–	<3.00	>.90	<.10	<.08	-	>.05
Complete group	225.68	10	22.57	.836	.086	.196	[.174, .218]	.000
Breast cancer	17.56	10	1.76	.932	.058	.085	[.000, .149]	.174
Testicular cancer	37.33	10	3.73	.873	.078	.177	[.119, .240]	.001
Skin cancer (women)	137.94	10	13.79	.791	.108	.231	[.198, .266]	.000
Skin cancer (men)	62.91	10	6.29	.790	.101	.203	[.157, .253]	.000

Note. *CFI* = comparative fit index; *SRMR* = standardized root mean square residual; *RMSEA* = root mean square error of approximation.

Model Respecification

Taking both statistical and theoretical considerations into account, we respecified the original model to achieve acceptable model fit for both the complete group and the four separate samples. Again, the complete group was taken as the starting point.

First, as suggested by Byrne (2001), we deleted the paths from identification to fear and to surprise because they had nonsignificant parameters. Furthermore, the paths from sadness to attitude and intention were dropped, just like the paths from fear to attitude and from surprise to intention.

Second, the modification indices were consulted. These suggested that the model fit would improve by adding paths between some of the emotions. Because earlier research (e.g., Dillard & Nabi, 2006; Dillard et al., 1996) showed that messages can arouse multiple emotions that are related to each other, we decided to allow the suggested direct paths that would result in the largest improvement in model fit, namely, from fear to sadness, from compassion to sadness, and from surprise to sadness. In addition, direct paths from AFT to attitude and from AFT to intention were added, which is consistent with earlier research (e.g., Oliver et al., 2012).

Third, as a result of the additions, the paths from identification to sadness, from compassion to attitude and from compassion to intention were no longer significant. Consequently, these three paths were dropped. After this, no more modification indices were suggested. However, the role of surprise in the model was unclear, as the path from AFT to surprise and from surprise to attitude turned out to be weak for the complete group and nonsignificant for most of the four samples separately. Subsequently, these paths were dropped as well. This decision was strengthened by the finding that exclusion of surprise improved model fit for all groups.

The respecified model had a good fit for the complete group as well as for the four separate samples.[6] Only for women who read the story about skin cancer χ^2/df and *RMSEA* were slightly above some of Kline's (2005) criteria (see Table 3). Figure 3 shows the final model.

Turning to the hypotheses, AFT turned out to be positively associated with identification (β = .64, p < .001), as predicted by H1. Consistent with H2a, H3a and H5a, AFT increased the arousal of fear (β = .51, p < .001), sadness (β = .19 p < .001), and compassion (β = .41, p < .001). Identification significantly predicted only compassion (β = .29, p < .01), supporting H5b, but invalidating H2b–4b.

Table 3. Fit Indices of the Final Model.

Group	χ^2	*df*	χ^2/df	*CFI*	*SRMR*	*RMSEA*	90% *CI*	*p*
Recommended values	–	–	<3.00	>.90	<.10	<.08	-	>.05
Complete group	20.758	10	2.08	.991	.027	.044	[.016, .070]	.613
Breast cancer	14.727	10	1.47	.958	.051	.067	[.000, .135]	.308
Testicular cancer	9.119	10	0.91	1.00	.044	.000	[.000, .109]	.683
Skin cancer (women)	31.159	10	3.12	.962	.044	.094	[.058, .132]	.025
Skin cancer (men)	10.364	10	1.04	.999	.039	.017	[.000, .098]	.652

Note. *CFI* = comparative fit index; *SRMR* = standardized root mean square residual; *RMSEA* = root mean square error of approximation.

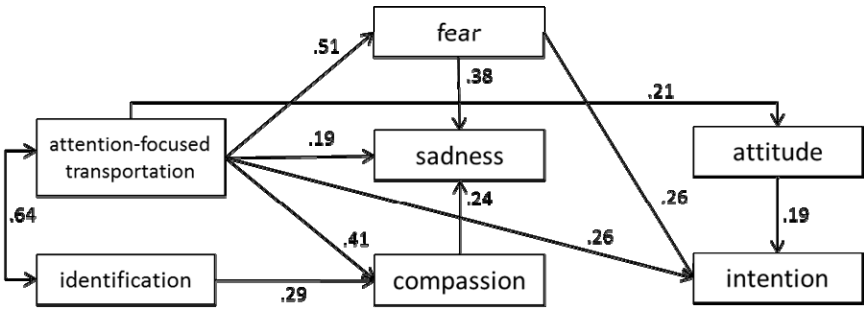

Figure 3. Final model (N = 564) with standardized estimates significant at p < .01 (error terms not shown).

[6] Entering experience with cancer (i.e., having a family member or close friend who has experienced cancer) as a control variable did not affect the pattern of results.

Mean scores on perceived efficacy turned out to be quite high[7] (response efficacy: M = 5.37, SD = 1.00; self-efficacy: M = 4.67, SD = 1.50), suggesting that we can test H6 ("If perceived efficacy is high, fear will be positively associated with attitude (H6a) and intention (H6b)"). Fear only significantly and positively predicted intention (β = .26, p < .001), supporting H6b, but not H6a. H7–9 predicted that sadness, surprise, and compassion would be related to attitude and intention, but they were not supported. H10 that predicted attitude would be positively associated with intention was confirmed (β = .19, p < .001). Finally, the final model implies that AFT indirectly may lead to intention via fear. Bootstrapping indeed revealed a significant indirect path (β = .17, 95% CI [.132, .231]).

Multigroup Analysis

To determine whether the relationships in the model based on the complete group (see Figure 3) would also hold for each of the four samples separately, we performed a multigroup analysis. In this analysis, we tested for differences between each sample and the remaining samples. The first significant difference was found between the testicular cancer sample and the remaining samples for the path from AFT to intention (z = 2.70, p < .01). For the complete group (without data from the testicular cancer sample), the relationship was positive and significant (β = .35, p < .001), whereas for men who read the story about testicular cancer, this relationship was not significant (β = .02, p = .89). The second significant difference was found between the breast cancer sample and the remaining samples, concerning the path from AFT to compassion (z = 1.69, p < .10). For the complete group (without data from the breast cancer study), the relationship was significantly more positive (β = .45, p < .001) than for women who read the story about breast cancer (β = .27, p < .05). No other significant differences were found, indicating that most paths in the model were consistent between the four samples.

Discussion

In this study, we examined the mechanism by which fear appeals—presented as narratives—may influence attitude and intentions toward health behaviors. Specifically, we tested the assumption that transportation and identification exert their persuasive influence by evoking emotional responses (Cohen, 2001; Green & Brock, 2000). In the context of our narrative fear appeals on cancer, we proposed that AFT and identification would be positively associated with fear, sadness, surprise, and compassion, which in turn would predict attitude and intentions toward performing self-exams. To test these hypotheses (summarized in Figure 1), we conducted a set of correlational studies and performed path analysis on the outcomes.

The results were largely in line with our initial model. AFT and identification were indeed associated with the felt emotions: AFT into the story positively predicted all four emotions, and

[7] Mean perceived efficacy scores were above the scale midpoint for each of the four studies separately. Men on testicular cancer: response efficacy, M = 5.56, SD = 0.97; self-efficacy, M = 5.41, SD = 1.40. Women on breast cancer: response efficacy, M = 5.59, SD = 0.85; self-efficacy, M = 4.86, SD = 1.39. Men on skin cancer: response efficacy, M = 5.34, SD = 1.05; self-efficacy, M = 4.48, SD = 1.54. Women on skin cancer: response efficacy, M = 5.21, SD = 1.01; self-efficacy, M = 4.43, SD = 1.47.

identification with the student protagonist was related to stronger feelings of compassion. Of the emotions, however, only fear proved to significantly predict the intentions to follow the recommendation of performing a self-exam. Although fear can sometimes lead to defensive reactions (Peters, Ruiter, & Kok, 2013), this study shows that fear aroused through AFT has the potential to positively influence behavioral intentions.

Not only did AFT produce an indirect effect, mediated by fear, we also found a significant direct path from AFT to attitude and behavioral intention. This suggests that narrative persuasion can also occur in ways that do not involve emotion. Indeed, other research has suggested that narratives, and especially entertainment–education narratives, can increase persuasion by overcoming resistance (Green & Brock, 2000; Moyer-Gusé, 2008). Receivers who are confronted with health-threatening cancer messages may want to counterargue the message, as they wish to "maintain an illusion of invulnerability" (Kreuter et al., 2007, p. 223). Being transported into the story may reduce this counterarguing (Green & Brock, 2000; Kreuter et al., 2007). Future research should find out to what extent these two routes, one more emotional and one more cognitive, can actually function in parallel. In any case, it seems necessary to add narrative variables to models such as the EPPM, although it is not yet completely clear what the resulting model should look like. We must rely on future work to devise and test such an enriched model.

Some hypothesized relations were not supported by our data. First, as expected, we found that AFT and identification are related, but the effects of identification turned out to be different from those of AFT. Whereas AFT was associated with all four emotions and also with the message outcomes, identification was significantly associated only with compassion. These findings support earlier research showing that transportation and identification are indeed different constructs (Tal-Or & Cohen, 2010). Our results are also consistent with those of Murphy et al. (2011), who found that transportation was the best predictor of changes in attitudes and behavior. It is important to bear in mind the operationalization of transportation in our study. Due to the specific kind of our story (we used a testimonial of someone who shared his/her experiences with cancer), we excluded a number of items that were used in previous research because we felt they were not pertinent to the message at hand. Although it would be methodologically advantageous for researchers working in the field of narrative persuasion to always use the same set of items to measure concepts such as transportation, in practice this seems very difficult to do because of substantial differences between the narratives used in various studies, ranging from simple pictures to small vignettes to elaborate written stories, movies, and television series (cf. Appel et al., 2015). It is crucial then that researchers are clear about exactly which items they chose, and why they did so, to avoid incorrect assumptions about the operationalization of transportation that is under discussion. Our findings suggest that identification with the main character may be less important than immersion in the story as a whole. It also implies that if it is necessary to choose, health campaign designers better aim for a high level of AFT in their messages than for strong identification with the protagonist.

We also hypothesized that emotions other than fear (in our case, sadness, surprise, and compassion) would be associated with the message outcomes, as proposed by Dillard and Nabi (2010; see also Popova, 2012), but this hypothesis was not supported by our data. One explanation could be that a difference exists in feeling emotions through a story and experiencing them based on real events. Consequently, the action tendencies may to some extent be different from those elicited by real events.

For instance, with regard to sadness, it is unlikely that a reader feels the same sadness as a protagonist who is suffering from cancer. It is more likely that the reader feels a "diluted" version of sadness, which may result in a weaker action tendency.

The reason why compassion did not affect behavioral intentions may be found in a slightly different direction. Compassion typically leads to the desire to help others (Lazarus, 1991), resulting in one's attention being focused on someone else. In our study, however, we asked respondents to indicate whether they intended to perform self-exams, making them focus on themselves rather than on others. Future studies should take into account that there is a possible difference in direction between the empathic feelings and the proposed action.

As far as the emotion of surprise is concerned, the path from AFT to attitude turned out to be significant for the complete group of respondents, but not for any of the four samples separately. Earlier research also has shown mixed findings on the effects of surprise (e.g., Dillard et al., 1996). Therefore, we chose to remove surprise from the model. We rely on future research to see whether this was the right decision.

Finally, although all directed paths we hypothesized in our model were motivated by experimental research, their causality should be tested in further experiments. The results of our correlational study identified variables that are worth studying in such experiments. For example, it would be interesting to see whether AFT remains the central concept when behavioral intentions are measured that focus not on the self (e.g., performing self-exams), but on the other (e.g., donating to a cancer research fund). Perhaps, identification will be more influential for this other-directed behavioral intention. In that case, it might also be tested which of these two concepts is most important, for instance, by changing the level of identification while keeping transportation constant. Such experiments will help us understand the mechanism underlying narrative persuasion, and allow us to design maximally persuasive narrative health messages. Furthermore, we found that both male and female participants could equally identify with a male or female protagonist, which seems to go against the idea of Slater and Rouner (2002) that similarity is an important predictor of identification. Although this finding suggests that there is no need for tailoring of health messages with respect to gender, future research should further examine the relationship between actual similarity, perceived similarity, and identification.

To conclude, our study contributes to the literature on fear appeals and narratives as well as on the persuasive effects of emotions, by showing that (1) attention-focused transportation was directly and positively associated with attitude and behavioral intention toward performing self-exams, whereas identification was not; (2) attention-focused transportation was positively associated with four emotions: fear, sadness, surprise, and compassion, whereas identification correlated positively with only one emotion: compassion; and (3) of all emotions, only fear predicted the intention to perform self-exams. Taken together, these findings suggest that attention-focused transportation is a crucial concept in the processing of narrative fear appeals.

References

Abbott, H. P. (2002). *The Cambridge introduction to narrative*. Cambridge, UK: Cambridge University Press.

Alden, D. L., Mukherjee, A., & Hoyer, W. D. (2000). The effects of incongruity, surprise and positive moderators on perceived humor in television advertising. *Journal of Advertising, 29*(2), 1–15.

Appel, M., Gnambs, T., Richter, T., & Green, M. (2015). The Transportation Scale–Short Form (TS-SF). *Media Psychology, 18*, 243–266.

Banerjee, S. C., & Greene, K. (2012). Role of transportation in the persuasion process: Cognitive and affective responses to antidrug narratives. *Journal of Health Communication, 17,* 564–581.

Bilandzic, H., & Busselle, R. (2013). Narrative persuasion. In J. P. Dillard & L. Shen (Eds.), *The SAGE handbook of persuasion: Developments in theory and practice* (pp. 200–219). Los Angeles, CA: SAGE Publications.

Braddock, K., & Dillard, J. P. (2016). Meta-analytic evidence for the persuasive effect of narratives on beliefs, attitudes, intentions, and behaviors. *Communication Monographs, 83*(4), 446–467.

Busselle, R., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology, 12*(4), 321–347.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication & Society, 4*(3), 245–264.

Consedine, N. S., & Moskowitz, J. T. (2007). The role of discrete emotions in health outcomes: A critical review. *Applied & Preventive Psychology, 12,* 59–75.

De Graaf, A., Hoeken, H., Sanders, J., & Beentjes, J. W. J. (2012). Identification as a mechanism of narrative persuasion. *Communication Research, 39*(6), 802–823.

De Hoog, N., Stroebe, W., & De Wit, J. B. F. (2008). The processing of fear-arousing communications: How biased processing leads to persuasion. *Social Influence, 3*(2), 84–113.

Dillard, J. P. (1994). Rethinking the study of fear appeals: An emotional perspective. *Communication Theory, 4*(4), 295–323.

Dillard, J. P., & Nabi, R. L. (2006). The persuasive influence of emotion in cancer prevention and detection messages. *Journal of Communication, 56,* 123–139.

Dillard, J. P., & Peck, E. (2000). Affect and persuasion: Emotional responses to public service announcements. *Communication Research, 27*(4), 461–495.

Dillard, J. P., Plotnick, C. A., Godbold, L. C., Freimuth, V. S., & Edgar, T. (1996). The multiple affective outcomes of AIDS PSAs: Fear appeals do more than scare people. *Communication Research, 23*(1), 44–72.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York, NY: Psychology Press.

Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory, 13*(2), 164–183.

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin, 136*(3), 351–374.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology, 79*(5), 701–721.

Hoeken, H., & Sinkeldam, J. (2014). The role of identification and perception of just outcome in evoking emotions in narrative persuasion. *Journal of Communication, 64,* 935–955.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.

Kreuter, M. W., Green, M. C., Cappella, J. N., Slater, M. D., Wise, M. E., Story, D., . . . Woolley, S. (2007). Narrative communication in cancer prevention and control: A framework to guide research and application. *Annals of Behavioral Medicine, 33*(3), 221–235.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.

Mauss, I. B., & Robinson, M. D. (2009). Measures of emotion: A review. *Cognition and Emotion, 23*(2), 209–237.

Morman, M. (2000). The influence of fear appeals, message design, and masculinity on men's motivation to perform the testicular self-exam. *Journal of Applied Communication Research, 28*(2), 91–116.

Moyer-Gusé, E. (2008). Toward a theory of entertainment persuasion: Explaining the persuasive effects of entertainment–education messages. *Communication Theory, 18,* 407–425.

Moyer-Gusé, E., & Nabi, R. L. (2010). Explaining the effects of narrative in an entertainment television program: Overcoming resistance to persuasion. *Human Communication Research, 36*, 26–52.

Murphy, S. T., Frank, L. B., Chatterjee, J. S., & Baezconde-Garbanati, L. (2013). Narrative versus nonnarrative: The role of identification, transportation, and emotion in reducing health disparities. *Journal of Communication, 63,* 116–137.

Murphy, S. T., Frank, L. B., Moran, M. B., & Patnoe-Woodley, P. (2011). Involved, transported, or emotional? Exploring the determinants of change in knowledge, attitudes, and behavior in entertainment-education. *Journal of Communication*, *61*, 407–431.

Myrick, J. G. (2015). *The role of emotions in preventative health communication*. London, UK: Lexington Books.

Myrick, J. G., & Oliver, M. B. (2014). Laughing and crying: Mixed emotions, compassion, and the effectiveness of a YouTube PSA about skin cancer. *Health Communication, 30,* 820–829.

Nabi, R. L. (2010). The case for emphasizing discrete emotions in communication research. *Communication Monographs, 77*(2), 153–159.

Oliver, M. B., Dillard, J. P., Bae, K., & Tamul, D. J. (2012). The effect of narrative news format on empathy for stigmatized groups. *Journalism & Mass Communication Quarterly, 89*(2), 205–224.

Ooms, J., Jansen, C., & Hoeks, J. (2015). The EPPM put to the test: Evaluating four basic propositions. *Dutch Journal of Applied Linguistics, 4*(2), 241–256.

Ordonana, J. R., González-Javier, F., Espín-López, L., & Gómez-Amor, J. (2009). Self-report and psychophysiological responses to fear appeals. *Human Communication Research, 35,* 195–220.

Park, H. S. (2000). Relationships among attitudes and subjective norms: Testing the theory of reasoned action across cultures. *Communication Studies, 51*(2), 162–175.

Peters, G. Y., Ruiter, R. A. C., & Kok, G. (2013). Threatening communication: A critical re-analysis and a revised meta-analytic test of fear appeal theory. *Health Psychology Review, 7,* 8–31.

Popova, L. (2012). The extended parallel process model: Illuminating the gaps in research. *Health Education & Behavior*, *39*(4), 455–473.

Ruiter, R. A. C., Verplanken, B., De Cremer, D., & Kok, G. (2004). Danger and fear control in response to fear appeals: The role of need for cognition. *Basic and Applied Social Psychology, 26*(1), 13–24.

Silvia, P. J. (2009). Looking past pleasure: Anger, confusion, disgust, pride, surprise, and other unusual aesthetic emotions. *Psychology of Aesthetics, Creativity, and the Arts, 3*(1), 48–51.

Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory, 12*(2), 173–191.

Tal-Or, N., & Cohen, J. (2010). Understanding audience involvement: Conceptualizing and manipulating identification and transportation. *Poetics, 38,* 402–418.

Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K., & Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, *141*(6), 1178–1204.

Wang, J.-L., Jackson, L. A., Gaskin, J., & Wang, H.-Z. (2014). The effects of social networking site (SNS) on college students' friendship and well-being. *Computers in Human Behavior, 37,* 229–236.

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs, 59,* 329–349.

Witte, K. (1998). Fear as motivator, fear as inhibitor: Using the extended parallel process model to explain fear appeal successes and failures. In P. A. Anderson & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 423–450). London, UK: Academic Press.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior, 27*(5)*,* 591–615.

Witte, K., Cameron, K. A., McKeon, J. K., & Berkowitz, J. M. (1996). Predicting risk behaviors: Development and validation of a diagnostic scale. *Journal of Health Communication, 1*(4), 317–341.

Appendix A: Material on Testicular Cancer

My name is Bart. I am 22 years old and I study law at the University of Groningen. At this point in my life, I thought I had everything under control—I had a great girlfriend, solid job prospects, a nice apartment, lots of money, and loyal friends. What I didn't have under control was developing cancer. But not just any cancer, testicular cancer to be specific. I had no clue that it is the most common form of cancer in guys ages 15–30. I started having some pain in my left testicle. After about a month, I finally went to the doctor because my girlfriend pushed me to. To my horror, the doctor found cancer.

Metastasized

Only one week after the diagnosis, my left testicle was removed. But that didn't stop the misery. I could no longer have sex with my girlfriend because I had trouble getting and keeping an erection. With only one testicle, I felt so embarrassed. We broke up last week. I dropped out of my college, fraternity, and soccer team, mainly because I didn't have any energy left and because my so-called friends started treating me different. The chemotherapy made me lose my hair, and I feel sick all the time. But that's not all.

The really bad news is that the cancer has spread to my liver, and the doctor gives me only a small chance of beating it. I keep thinking, I am only 22 years old, this isn't supposed to be happening!

Too Macho

If I had discovered the tumor earlier, I might have really improved my chances of beating cancer. I had heard of the testicular self-exam (TSE) to check for tumors, but it seemed nonsense to me. None of my friends ever talked about it, and I guess none of them did the exam either. Now, what do I have to show for my macho attitude? No girlfriend, no sex, no hair, and barely any friends. And I'm terminally ill. Perhaps, I won't survive.

Better Early Than (Too) Late

Dear reader, don't make my mistake. Don't let your pride and ego keep you from doing the self-exam. It's really simple: Once a month, after a warm shower, roll each testicle gently between your thumb and fingers. Feel for any hard lumps. If you have pain in your testicles, or if you find a lump, go see your doctor immediately. He tells me there is a big chance of survival if it is caught early.

Learn the TSE and do it once a month. It will save your life!

Appendix B

Table B1. Correlations and Descriptive Statistics for Model Variables (N = 564).

Variable	1	2	3	4	5	6	7	8
1. AFT	–							
2. Identification	.64**	–						
3. Fear	.51**	.34**	–					
4. Sadness	.52**	.41**	.57**	–				
5. Surprise	.22**	.14**	.23**	.28**	–			
6. Compassion	.59**	.55**	.41**	.50**	.25**	–		
7. Attitude	.21**	.12**	.06	.09*	−.05	.11*	–	
8. Intention	.43**	.30**	.40**	.30**	.08	.28**	.26**	–
α	.88	.78	.93	.92	.86	.91	.89	.96
M	4.24	4.51	3.38	3.28	2.56	5.11	5.56	3.63
SD	1.36	1.33	1.49	1.59	1.37	1.45	1.44	1.54

Note. AFT=Attention-focused Transportation; *$p < .05$; **$p < .01$.