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"Don't make my mistake"

Ooms, Joëlle

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"Don't make my mistake"

Narrative fear appeals in health communication

Joëlle Ooms

**university of
 groningen**

faculty of arts

CLCG

The research reported in this dissertation has been carried out under the auspice of the Center for Language and Cognition Groningen (CLCG) of the Faculty of Arts of the University of Groningen.

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"Don't make my mistake"

Narrative fear appeals in health communication

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Promotores

Prof. dr. J.C.J. Hoeks

Prof. dr. C.J.M. Jansen

Beoordelingscommissie

Prof. dr. J.A.L. Hoeken

Prof. dr. J.M. Sanders

Prof. dr. A. Dijkstra

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CHAPTER 1

General introduction

Health communicators face the challenging task of convincing people to adopt a healthy lifestyle. Ideally, people will immediately perform the desired behavior when confronted with a health advice. In practice, however, behavior change is complex. Unhealthy behaviors, such as smoking or heavy drinking, often have become habits that are difficult to change (Maio et al., 2007). Behavior change can also be hindered by personal or situational limitations (Maio et al.). For instance, although people probably know that they should eat vegetables to stay healthy, they might continue eating unhealthy because their desire for junk food is bigger, or the unhealthy food is cheaper than a healthy option. Nonetheless, empirical evidence shows that communication does have the power to affect people's health behavior. After reviewing 10 years of research, Noar (2006), for instance, concludes that health mass media campaigns can have small-to-moderate effects on health knowledge, beliefs, attitudes, and behaviors. Even small effects of mass media imply that the health behavior of large numbers of people is affected (Snyder et al., 2004). Correspondingly, Wakefield, Loken, and Hornik (2010) conclude in their review of studies into mass media campaigns that these campaigns can positively influence health behaviors across large populations. Knowing that communication can have an important impact on public health, there is merit in additional research on persuasive health messages.

This dissertation will focus on a type of message that is often used in persuasive health communication (So, Kuang, & Cho, 2015): fear appeal messages. Fear appeals can be defined as "persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what the message recommends" (Witte, 1992, p. 329). The use of fear-inducing messages is perhaps best illustrated in the warnings of black lungs and yellow teeth which are depicted on cigarette packages worldwide, since 2016 also in the Netherlands. Next to smoking prevention, fear-arousing communications also address other health risks such as road safety (Hastings, Stead, & Webb, 2004). The purpose of fear appeals evidently is to frighten receivers into performing the desired action, but fear is not necessarily the only emotion aroused by fear appeals. Also emotions as sadness, surprise, or anger can be elicited (e.g. Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996; Dillard & Nabi, 2006; Timmers & Van der Wijst, 2007). Although these other emotions seem to contribute to the persuasive potential of fear appeals, their exact role is unclear (Dillard & Peck, 2001; Timmers & Van der Wijst, 2007).

Many of the fear appeals that researchers have used to arouse fear and / or other emotions, include personal stories of survivors who share their experiences after having dealt with a certain health threat (Dillard et al., 1996; Morman, 2000). Stories can successfully change people's attitude and intentions when receivers get transported into the narrative (Green & Brock, 2000) and identify with the protagonist (Cohen, 2001). These narrative mechanisms, called *transportation* and *identification*, are said to evoke emotional responses (Cohen, 2001; Green & Brock, 2000), but the question is whether they are also responsible for the levels of fear and other emotions reported in studies on fear appeals. Which role do transportation and identification play in the processing and persuasive effects of fear appeals? In this dissertation, we will try to answer this question, while also examining the role of emotions in the processing of narrative fear appeals. Thus, the aim of this dissertation is twofold: (1) investigating how the narrative mechanisms of transportation and identification are related to fear and also other emotions that may be elicited during the processing of narrative fear appeals, and (2) investigating how these narrative mechanisms and emotions are associated with persuasive outcomes of narrative fear appeals.

In what follows, we will first elaborate on fear appeals and specifically on a theoretical framework that explains the role of fear in persuasion. Then, we continue with the discussion of other emotions that seem relevant in studying fear appeals. After that we will focus on narratives. Finally, the research questions are presented.

1.1 Fear appeals

Throughout the years, different theoretical models have been proposed that predict and explain how fear appeals work, such as the fear-as-acquired drive model (Hovland, Janis, & Kelly, 1953), the parallel response model (Leventhal, 1970), the protection motivation theory (Rogers, 1975), and the extended parallel process model (EPPM; Witte, 1992). Of these models, the EPPM has probably been the most influential. Both scholars and health communicators often base their messages on the EPPM (Popova, 2012). The EPPM (see Figure 1.1) describes the conditions under which fear appeals can lead to the desired behavior change, assuming that fear appeals consist of a threat component and an efficacy component. Firstly, receivers must perceive the depicted threat as severe (perceived severity) and they must feel vulnerable to the threat (perceived susceptibility). This perceived threat then

arouses fear. Fear, in turn, can increase one's assessment of threat (see feedback loop in Figure 1.1). Secondly, receivers must believe that the recommended action is effective in preventing the threat (perceived response efficacy) and that they are capable to perform that action (perceived self-efficacy). When both perceived threat and perceived efficacy are high, the EPPM predicts that receivers accept the message and are likely to perform the desired action to avert the threat. This process is the desired outcome and is called danger control. When perceived threat is low, receivers may stop processing the message. When perceived threat is high, but perceived efficacy is low, receivers may want to avert the fear instead of the threat. This undesired outcome is called fear control. Individual differences might influence the appraisal of threat and efficacy, and thus indirectly also what type of response a person engages in. For example, low self-esteem people might appraise a message recommendation as more unfeasible and ineffective than high self-esteem people might do, and are thus more likely to end up in fear control (Witte, 1992).

The predictions of the EPPM as described above can be articulated in twelve propositions (see Appendix A in Chapter 2 of this dissertation). Despite the clarity and the attractiveness of the model, empirical evidence for these propositions, and thus for the EPPM, is limited. Popova (2012), for instance, analysed twenty-nine studies that empirically tested one or more of the twelve propositions. Remarkably, her meta-analytic review shows that none of the propositions received unequivocal support. Furthermore, some propositions had not been tested yet or had not been operationalized correctly. Popova (2012) concludes that the internal inconsistencies of the EPPM need to be resolved.

Figure 1.1 The Extended Parallel Process Model (Witte, 1998)

This conclusion is shared by So (2013), who points to the limited role of fear in the EPPM, especially with regard to danger control. According to Witte (1992), fear directly causes fear control responses, but is only indirectly related to danger control responses, with threat as mediating variable. In her extended version of the EPPM (E-EPPM), So (2013) proposes that fear causes both danger control and fear control responses via coping appraisal (i.e. efficacy beliefs). The changes she suggests are in line with cognitive appraisal theory in which it is assumed that emotions such as fear trigger ‘coping mechanisms’, as emotions serve as motivations toward action (Folkman & Lazarus, 1988). In a test of the E-EPPM, So, Kuang, and Cho (2015) found that fear indeed had an indirect effect on danger control responses by activating coping appraisal processes. Popova (2012), however, reports that some studies even found a direct effect of fear on danger control responses, while other studies found that threat mediated the relationship between fear and intentions, as suggested by Witte (1992). Thus, there is still disagreement on the relationships between the central EPPM-variables.

Apart from the question *how* fear appeals exactly work, some authors doubt *if* fear appeals should be used at all. In line with the predictions of the EPPM, several meta-analyses (e.g. Witte & Allen, 2000; Peters, Ruiter, & Kok, 2013) found that strong fear appeals with high-efficacy messages produce the greatest behavior change, whereas strong fear appeals with low-efficacy messages produce the

greatest levels of defensive responses. Because these defensive reactions are quite likely, and possibly very detrimental to the intended health outcome, Peters, Ruiter, and Kok (2013) argue that the use of fear appeals is too risky. More recent research findings, however, provide new evidence in favor of the use of fear appeals. A meta-analysis by Tannenbaum et al. (2015), for instance, showed that fear appeals, with or without efficacy statements, can successfully influence attitudes, intentions, and behaviors, although the inclusion of efficacy statements does increase the effectiveness. In a very recent paper, Kok, Peters, Kessels, Ten Hoor, and Ruiter (2018) again question the efficacy of fear appeals and present a critical review of Tannenbaum et al.'s meta-analysis and other publications about the effects of fear appeals (e.g. Noar et al., 2016; Hall et al., 2016; Thrasher et al., 2014). One of the main arguments of Kok et al. against the meta-analysis of Tannenbaum et al. is that various different outcome measures are combined, leaving the separate effect of fear appeals on behavior unmentioned. However, White and Albarracín (2018) refute the arguments of Kok et al. by demonstrating that fear appeals also yield a positive effect on measures of actual health *behavior*. White and Albarracín conclude their commentary by saying: "When fear appeals are compared with no message or with a message with a lower fear level, the answer to the question of efficacy is a resounding 'Yes, they work!'" (p. 149).

One point of caution that Tannenbaum et al. (2015) put forward is that the majority of the fear appeal studies they analyzed did not include measures of subjective fear. Consequently, Tannenbaum and colleagues had to compare messages that were designed to induce relatively high levels of fear with messages designed to induce lower levels of fear, instead of comparing reactions of receivers who actually felt afraid with reactions of receivers who were not afraid. This makes it unclear if the relation between message presentation and response was mediated by fear, *or* by other (emotional) responses that were evoked by the fear appeal. As Tannenbaum et al. state, it is possible that "these other emotions partially (or in some cases even fully) mediate the effects of fear appeals" (p. 1197). The EPPM, however, does not take into account the possible influence of such other emotions. So (2013) did suggest to add *anxiety* to the EPPM (which will be further explained under Section 1.2), but this still neglects the role of emotions such as sadness or empathy. The following section discusses research into various emotions aroused by fear appeals, after which a list of emotions studied in this dissertation will be presented.

1.2 Emotions

As explained above, fear appeals may elicit other emotions than just fear. Dillard et al. (1996) demonstrated that fear appeals in the form of public service announcements (PSAs) on AIDS, also induced sadness, puzzlement, surprise, anger, and happiness. Perhaps even more importantly, fear, surprise, and sadness proved to be positively related to message acceptance, whereas puzzlement and anger showed a negative relationship with message acceptance. Dillard and Peck (2000) replicated the results of Dillard et al. (1996) using PSAs on different health topics. They found that each PSA elicited different emotions and that each emotion had its own effect on the acceptance of the message. Not all emotions that were aroused significantly influenced message acceptance. Surprise, for example, was aroused by six of the eight PSA's, but it showed a positive relationship with message acceptance in only two of these cases. Apparently, evocation of emotions alone is not sufficient to lead to message acceptance or rejection. That is why Dillard and Peck (2000) highlight the need for more research on emotions and persuasion.

Timmers and Van der Wijst (2007) responded to this call by studying the effects of various emotions on the persuasion process of fear appeals. They measured the effects of surprise, fear, puzzlement, sadness, and frustration on beliefs, attitudes, and intentions concerning smoking. Their material consisted of four anti-smoking warnings, addressing different consequences of smoking. Timmers and Van der Wijst found that the emotions of fear, surprise, puzzlement, sadness had a positive influence on the persuasion process, whereas frustration had a negative effect. Again, however, the magnitude of these results differed per warning and per persuasive outcome. Thus, it remains unclear when and why emotions influence the effectiveness of fear appeals.

There is also evidence that emotions other than the ones measured in Dillard et al. (1996), Dillard and Peck (2000), and Timmers and Van der Wijst (2007), are relevant for the effectiveness of fear appeals. Disgust is one example. Empirical evidence suggests that fear appeals that arouse fear as well as disgust are more persuasive than fear appeals that only arouse fear (Morales, Wu, & Fitzsimons, 2012). Another possible relevant emotion is anxiety. Anxiety differs from fear in that fear is evoked by a concrete stimulus (i.e. threat) and anxiety is not. An anxious person does not know where his or her ominous feelings come from, whereas a frightened person does (Rachman, 2004). So (2013) suggests to take anxiety into account when studying fear appeals, because the susceptibility component of a

threat (“Am I vulnerable to the health threat?”) involves uncertainty, which can evoke feelings of anxiety. The severity component (“How severe is the health threat?”) specifically arouses fear, according to So. Lastly, compassion can be evoked by a fear appeal message, especially if it includes personal experiences of people who dealt with the threat depicted in the message (Oliver, Dillard, Bae, & Tamul, 2012). In conclusion, several researchers (e.g. Popova, 2012; So, 2013; Dillard & Nabi, 2006) suggest to include other emotions than fear in fear appeal theories, as numerous studies have shown that fear appeals may evoke other emotions than fear (Dillard et al., 1996; Dillard & Peck, 2000; Timmers & Van der Wijst, 2007). However, the specific role of each distinct emotion in the persuasion process of fear appeals remains unclear.

By studying distinct emotions, a discrete, appraisal approach of emotions is taken (cf. Nabi, 2010). The appraisal approach assumes that emotions are the result of the cognitive appraisal of a given event (i.e., what is the significance and meaning of the event for an individual), and also 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). Table 1.1 shows the action tendencies of the emotions that were found to be aroused by fear appeals and that hence will be studied in this dissertation. This set of emotions includes the six emotions that are often mentioned as basic emotions (cf. Frijda, 2005): happiness, fear, sadness, surprise, anger, and disgust. We added anxiety, puzzlement, and compassion, as these emotions have been suggested to be also relevant in the context of fear appeals.

Table 1.1 Action tendencies of discrete emotions

Emotion	Action tendency
Fear	Avoidance
Anxiety	Avoidance
Happiness	Continuation
Surprise	Focus
Puzzlement	Analyze
Sadness	Withdrawal or inaction
Anger	Attack
Disgust	Removal of object
Compassion	Help others

Looking at the stimuli that researchers of fear appeal messages used to arouse fear and/or other emotions, it appears that many of these fear appeal messages were delivered in narrative form. Part of the PSAs Dillard et al. (1996) used in their study, for example, were stories delivered by individuals who had personally dealt with the health threat. Such personal stories, or testimonials, were used in written form in multiple studies on fear appeals (e.g., Witte, 1994; Morman, 2000; Hoeken & Geurts, 2005; Murray-Johnson, Witte, Liu, & Hubbell, 2001; Jansen & Verstappen, 2014). Testimonials are also used in public health campaigns of, for example, the Dutch heart foundation (hartstichting.nl) or the foundation for transplantation (NTS.nl). Another example of presenting a fear appeal in narrative form can be found in the antismoking warnings that recently have appeared in a number of European countries. Figure 1.2 shows two examples. The left warning displays two crying people standing above a small coffin accompanied by the text “smoking can kill your unborn baby”. This warning strongly suggests a story about a couple that expected a baby, which sadly did not live because the mother or father smoked. The second warning displays again two crying people during a visit to the gynaecologist, accompanied by the text “smoking reduces fertility”. This warning suggests that the couple was told that they are not able to have babies because of fertility problems caused by smoking (Figure 1.2, right).

Figure 1.2 Antismoking warnings that imply a story

Concluding, both in research and in practice, fear appeals are frequently, explicitly or implicitly, presented as stories. Stories, or *narratives*, have their own mechanisms through which they may persuade receivers (Green & Brock, 2000; Cohen, 2001). It is unclear, however, how such narrative mechanisms can be incorporated in fear appeal theories, such as the EPPM. In the next section, we will therefore elaborate further on narratives. First, the concept of narrative will be defined, afterwards the mechanisms will be discussed. Finally, the research questions will be presented.

1.3 Narratives

Narratives can take a wide range of formats, as the examples given above may already have suggested. Hinyard and Kreuter (2007) found that studies have operationalized narrative in many different ways, possibly because there is no universal definition of narrative. One way is to define narrative broadly as a symbolic representation of events (Abbott, 2002), allowing even a single picture, such as shown in Figure 1.2, or one sentence, such as “I fell down” (which implies that the narrator was first standing), to be classified as narrative. A more extensive definition of narratives can be found in Kreuter et al. (2007, p. 222), who define narrative as “a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed”. Yet another proposal is to consider narrative as a “portrayal of the inner world of a character” (Bilandzic & Busselle, 2013, p. 201), such as testimonials do. All these definitions show that a message should at least include a representation of an *event* experienced by a *character* to be defined as narrative (cf. De Graaf, Sanders, & Hoeken, 2016; Moyer-Gusé & Dale, 2017).

Narratives have become a popular research topic in health communication. That is not without reason, as several meta-analyses (e.g. Braddock & Dillard, 2016; Shen, Sheer, & Li, 2015) show that narratives can have positive effects on beliefs, attitudes, intentions, and behaviors. The reported effects were seldom large, but as pointed out before, mediated health campaigns often have small, but non-negligible effects (Snyder et al., 2004; Noar, 2006). In line with the meta-analytic results described above, De Graaf, Sanders, and Hoeken (2016) show in their systematic review of studies on health-related narrative persuasion that narratives can produce effects on various persuasive outcomes when compared with control conditions. Narrative impact can be achieved by a number of mechanisms that will be discussed below.

1.3.1 Transportation and identification

As was mentioned above, two variables are especially relevant for narrative persuasion: transportation (Green & Brock, 2000) and identification (Cohen, 2001; 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). Transportation is also referred to as immersion, absorption, narrative involvement or engagement (Moyer-Gusé, 2008; Moyer-Gusé & Dale, 2017). 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 may have an impact on attitudes and intentions by evoking (strong) emotional responses (Cohen, 2001; Green & Brock, 2000). Empirical evidence supports the mediating role of emotions in narrative persuasion. Murphy, Frank, Moran, and Patnoe-Woodley (2011), for example, found that identification had an influence on transportation, which led to stronger emotions. Transportation and emotions, in turn, were related to changes in attitudes and behavior (see also Murphy et al., 2013). Banerjee and Greene (2012) found that some emotions mediate the relation between transportation and anti-cocaine beliefs. Hoeken and Sinkeldam (2014) showed that emotions mediate the relation between identification and the attitude of readers.

Besides by eliciting emotions, transportation and identification may also influence persuasive effects by reducing resistance to the persuasive message embedded in the narrative (Green & Brock, 2000; Slater & Rouner, 2002; Kreuter et al., 2007). Moyer-Gusé (2008) provides a framework for explaining how narratives can overcome various forms of resistance: the Entertainment Overcoming Resistance Model (EORM). Based on the Extended Elaboration Likelihood Model of Slater and Rouner (2002), the EORM states that transportation and identification can reduce counterarguing. When receivers are absorbed in the story or in a character, they are unlikely to think of real-world facts that might contradict the assertions made in the narrative (Moyer-Gusé, 2008). In a test of the EORM, Moyer-Gusé and Nabi (2010) found that identification indeed reduced counterarguing, but

transportation unexpectedly showed a *positive* relationship with counterarguing. This may be due to the measurement of counterarguing in their study, as the existing closed-ended self-reports do not make clear with what the receivers counterargued (Moyer-Gusé & Nabi).

The EORM also addresses another type of resistance against persuasive messages that narratives can overcome, namely selective avoidance. One possible reason that individuals decide to avoid (specific parts of) health messages is fear. When a health message frightens receivers without presenting information about how to prevent the threat, receivers may avert the fear instead of the threat by, among others, avoiding the information. This defensive avoidance is one of the fear control responses in the EPPM. Moyer-Gusé (2008) assumes that narratives may help preventing this response, because transported readers often do not want to stop reading and want to know how the story ends, which may make them willing to process the fear-inducing message parts too. This assumption is, as far as we know, not yet tested; Moyer-Gusé and Nabi did not include measures of selective avoidance in their test of the EORM.

Given the importance of transportation and identification for narrative impact, many studies focused on the question what factors affect transportation and identification. It has been suggested that the extent to which the protagonist in a story is presented as *similar* to readers can positively influence both identification (Cohen, Weimann-Saks, & Mazor-Tregerman, 2017) and transportation (Slater & Rouner, 2002). Transportation can also be enhanced by an increase of suspense (Tal-Or & Cohen, 2010). Factors that have the potential to increase identification with a protagonist, are narrator point of view (Chen, Bell, & Taylor, 2017) and character likeability (Jansen, Nederhoff, & Ooms, 2017).

In conclusion, the effectiveness of narrative fear appeals can be increased by the narrative mechanisms of transportation and identification in two ways. Narrative mechanisms can positively influence the processing because they can arouse stronger fear and/or other emotions, and these emotions can contribute to the persuasive effects of fear appeals. In addition, transportation and identification can prevent resistance reactions, which are comparable with fear control responses, and instead stimulate the desired danger control responses.

1.4 Research questions

In this dissertation, we report on five studies that aimed to find out how narrative fear appeals are processed. We investigated to what extent narrative mechanisms (i.e. transportation and identification) are responsible for the levels of fear and other emotions reported in studies on fear appeals, and how narrative mechanisms and emotions are related to the persuasive outcomes of narrative fear appeals. As a starting point, we tested the appropriateness of the EPPM of Witte (1992) in predicting the processing and persuasive outcomes of narrative fear appeals. Thus, our first research question was:

RQ1: How valid is the EPPM in predicting the processing and persuasive outcomes of narrative fear appeals?

For examining the mechanisms underlying the processing of narrative fear appeals, we formulated the following research question:

RQ2: What is the role of narrative mechanisms (transportation and identification) and emotions (fear and other emotions) in the processing of narrative fear appeals and the persuasive outcomes of these messages?

Next to understanding how narrative fear appeals may be processed, it is also important, for both researchers and health designers, to know how transportation and identification, and consequently also emotions and persuasion, can be increased. That is why we added the following research question:

RQ3: Which message characteristics can influence the mechanisms underlying the processing of narrative fear appeals?

1.5 Outline of dissertation

The validity of the EPPM is addressed in Chapter 2. This chapter reports on an explorative correlational study into the validity of the EPPM for narrative fear appeals (RQ1). In the study discussed in Chapter 3, we investigate how narrative fear appeals are processed (RQ2). We conducted a correlational study in which participants were presented with versions of a story about a protagonist who is dealing with cancer (breast cancer, testicular cancer, skin cancer). We measured

several discrete emotions (fear, sadness, surprise, compassion), the level of transportation and identification, and the attitude and intention towards performing self-exams. Subsequently, in the studies presented in Chapter 4, we investigated how transportation and identification, and consequently also emotions and persuasion, can be increased (RQ3). In these studies, we compared readers' reactions to a story with a similar protagonist or with a dissimilar protagonist. Chapter 5 elaborates on Chapter 4 by reporting on a study where we used similarity characteristics that were more relevant for the story topics and by including more participants. Chapter 6 explored if images that are perceived as narrative might be processed through the same mechanisms that underlie the persuasiveness of text-based narratives as studied in Chapters 3-5. The Chapters 3-6 together provide the answer to RQ2. Chapter 7 presents the conclusions of this dissertation. Here, the results of the five empirical studies that were discussed in Chapters 2-6 are combined in answering the three research questions. Furthermore, Chapter 7 presents theoretical and practical implications of our findings, as well as directions for future research.

CHAPTER 2

The EPPM put to the test:

Evaluating four basic propositions

This chapter is based on:

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.

Abstract

Fear appeals are frequently used in health communication, for example in anti-smoking campaigns. Of the different theoretical models that predict and explain how fear appeals work, the Extended Parallel Process Model (EPPM; Witte, 1992) is probably used most often. However, most propositions of the EPPM were not explicitly tested, or received mixed empirical support (Popova, 2012).

To clarify the relationships between the variables of the EPPM, four of the EPPM's propositions were tested by performing correlational and mediation analyses. The results ($n = 116$) show that a large part of the relationships between the concepts of the EPPM and the outcomes of fear appeals differ from what the EPPM claims: threat and intention did not prove to be related, threat did not mediate the effect of fear on intention, and fear did not prove to influence the fear control responses. The findings from this study raise questions regarding the appropriateness of the EPPM.

2.1 Introduction

By depicting the negative consequences of a specific health behavior, practitioners of health communication try to frighten people into following the desired action (e.g. use a condom). Fear appeal messages are often inspired by the Extended Parallel Process Model (EPPM). Both advertisers and health communication professionals base their message decisions on the EPPM (Popova, 2012). The cigarette warning labels in Canada, for example, are guided by the EPPM (Goodall & Roberto, 2008). Witte (1992) developed this model to predict and explain how fear appeals work.

The EPPM posits that fear appeals can have a persuasive effect, but only under certain conditions (see Figure 2.1). Firstly, receivers must perceive the threat that is depicted as severe (perceived severity) and they must feel vulnerable to the threat (perceived susceptibility). Secondly, receivers must believe that the recommended action is effective in preventing the threat (perceived response efficacy) and that they are able to perform the action (perceived self-efficacy). When both perceived threat and perceived efficacy are high, receivers are expected to accept the message and consequently to perform the desired action to avert the threat. This is called “danger control”. When perceived threat is high but perceived efficacy is low, receivers may engage in “fear control”: they become motivated to avert the fear by, for example, minimizing the message instead of deterring the threat. When for some reason perceived threat is low, receivers are likely to stop processing the message before even considering the efficacy of the recommended action.

Figure 2.1 The Extended Parallel Process Model (Witte, 1998)

The EPPM is based on twelve propositions (Witte, 1992, 1998), which are listed in Appendix A. Popova (2012) recently reviewed all propositions of the EPPM in order to investigate to what extent the EPPM has received empirical support. Popova included twenty-nine studies in her analysis that had tested at least one of the propositions. She concludes that none of the EPPM's propositions has received unequivocal support. Furthermore, she notes that about half of the propositions had not been extensively tested yet or had been operationalized incorrectly. Popova concludes that mixed support was found for most propositions. One of the reasons Popova gives for these mixed findings is that the propositions have often been tested with threat and efficacy manipulated as message features instead of measured as actual perceptions. Even when threat and efficacy are not manipulated to be either high or low, the variables have usually been treated as categorical variables through median split. Most of the propositions, however, refer to continuous variables, for example "when threat increases, so will message acceptance". Therefore, Popova (2012) suggests to use perceptions of threat and efficacy instead of treat them as characteristics of the message, and to analyze the data using correlational and regression analyses.

Following Popova's suggestions, we conducted a correlational study in which we focused on four propositions of the EPPM that have already been tested but received mixed support. Propositions that would require experiments or

equivalence testing are left out in this study, because this study was set up as a correlational study. Each proposition refers to a specific relationship between the concepts of the EPPM and can therefore be examined separately (cf. Witte, 1992; Popova, 2012). Table 2.1 lists the propositions that are examined in this study (see Appendix A for complete listing of the propositions). They are elaborated in the following paragraph.

Table 2.1 Abbreviations of the EPPM's propositions examined in this study

Proposition 2	If efficacy is high, threat → danger control
Proposition 6	Fear → fear control
Proposition 7	If efficacy is high, fear → threat → danger control
Proposition 12	Individual differences → threat and efficacy → danger control and fear control

Proposition 2 posits that, when efficacy is high, greater threat leads to greater message acceptance. According to Popova (2012), a number of studies found that high threat indeed resulted in higher attitudes and intentions for groups high in efficacy. In a more recent study, Popova (2013) herself found that for smokers with high levels of efficacy, higher perceived threat was related to less favorable attitudes toward the relatively new smokeless tobacco product *snus* and lower intentions to try snus. Other studies, however, found no effect of threat on danger control responses. Thus, the relation between threat and danger control responses remains unclear.

The EPPM further claims that threat mediates the relation between fear and danger control responses (proposition 7). Here, Witte (1998) assumes that fear can be *indirectly* related to danger control responses because fear can lead to the upgrade of perceptions of threat (see feedback loop in Figure 2.1: fear → perceived threat → danger control). This would only hold true, however, under the condition that efficacy is high; when efficacy is low, fear will lead to fear control responses (Witte, 1998). Although Popova (2012, p. 464) reports that some researchers found evidence for the proposed relationship between fear and intentions with threat as mediator, others found a direct effect of fear on intentions.

Mixed support was also found for the proposition concerning the relation between fear and fear control responses. Witte claims that fear causes fear control responses (proposition 6), which is indicated in Figure 2.1 by the direct arrow from fear to defensive motivation leading to a fear control process. Popova (2012, p. 464) reports that some fear control responses were indeed related to fear, while others were not.

The last proposition examined here concerns the role of individual differences. According to Witte, “individual differences influence outcomes indirectly, as mediated by perceived threat and efficacy” (proposition 12). As there are many individual characteristics that can influence the perceptions of threat and efficacy, it is not surprising that mixed support was found for this proposition (Popova, 2012, p. 466). One individual characteristic that was often studied is trait anxiety, “one’s characteristic level of anxiousness in response to a threat that leads one to react in either an avoidant or coping manner” (Witte & Morrison, 2000, p. 6). Research by Witte and Morrison suggests that trait anxiety does not affect attitude and intentions, but findings on this issue are inconsistent (Witte & Morrison, p. 9).

The present study aims to clarify the relationships between the EPPM-variables. The following research question is addressed: *Are threat, efficacy, fear, and trait anxiety related to the outcomes of fear appeals as proposed in propositions 2, 6, 7 and 12?*

To answer this question, a correlational study was conducted and mediation analyses were performed.

2.2 Method

2.2.1 Materials

In this study, we used a fear appeal in the form of a narrative. Narratives can facilitate the arousal of strong emotions, like fear, by transporting the receiver into the story (Green & Brock, 2000). When receivers read or watch a story, they may lose themselves into the story and become involved with the character, through which receivers can be affected by the emotions of the character. This emotional experience is called transportation (Moyer-Gusé, 2008), and, as Moyer-Gusé (2008) puts it, “because of the engaging structure of a narrative, viewers may be uniquely willing to attend to messages that are personally fear inducing to them in a way they otherwise would not” (pp. 417-418).

We created a Dutch narrative fear appeal aimed at females (see Appendix B for a version translated into English), based on Morman (2000). Our narrative tells the story of a student who refused to perform a breast self-exam. The girl discovers she has breast cancer only in a later stage of development and has to deal with severe consequences. In the last paragraph, the girl advises other young females to perform the self-exam every month, in order to detect breast cancer in an early stage. Additionally, information is provided on how to perform the self-exam. This information is intended to promote high levels of perceived efficacy, which is required for tests of some propositions.

Pretests showed that the story was perceived as credible, understandable, and fear-arousing, as the mean scores of these variables were numerically at least above the midpoint of the scales that were used. This also applied to the level of perceived efficacy, which suggests that the story was able to create perceptions of efficacy.

2.2.2 Participants and procedure

The study was conducted in two undergraduate classes at the Faculty of Arts of the University of Groningen (the Netherlands). A questionnaire was distributed that consisted of a cover page with instructions, the narrative fear appeal, questions measuring the dependent variables, and personal questions about the participant. It took participants approximately 15 minutes to complete the questionnaire. Participants were debriefed in a follow-up lecture.

In total, 116 female first-year students of the University of Groningen participated in the study. The mean age of the participants was 19.23 years ($SD = 1.61$). On a five-point scale, the participants reported an average level of prior knowledge about breast cancer of 3.37 ($SD = 0.82$).

2.2.3 Measures

Fear

The statement ‘While reading the story, I felt ...’ was presented, followed by two items¹ for each emotion. Along with fear, the emotion of anxiety was measured, as suggested by So (2013), who argues that the susceptibility component of threat (Am

¹ All items were formulated in Dutch. Here, the approximate English translations are presented.

I vulnerable to the health risk?) involves uncertainty which often evokes anxiety. Anxiety differs from fear, in that fear is evoked by a concrete stimulus and anxiety is not. An anxious person does not know where his/her ominous feeling comes from (Rachman, 2004, p. 5).

For fear, the items 'afraid' and 'scared' were used, as was done in, for instance, Dillard et al. (1996). Following So (2013), who suggests to measure anxiety with words that express the feeling of tensions, nervousness, and worry, for anxiety the items 'worried' and 'tensed' were used. The response scales ranged from strongly disagree (1) to strongly agree (7).

After data collection, we subjected the items to a principal components analysis. The analysis extracted one factor (eigenvalue > 1), explaining 73% of the total variance. As the Cronbach's alpha for all four items was more than satisfactory ($\alpha = .88$), we decided to take the four items together and not take fear and anxiety separately. We labeled this factor 'fear'.

Threat and efficacy

The Risk Behavior Diagnosis (RBD) Scale, developed by Witte, Cameron, McKeon and Berkowitz (1996), was used for the measurement of the perceived threat and efficacy components. The first component of threat, severity, was measured with three items: 'I believe breast cancer is severe', 'I believe that breast cancer is serious' and 'I believe that breast cancer is significant' ($\alpha = .70$). The second component of threat, susceptibility, was measured with the items 'I am at risk of getting breast cancer', 'It is likely that I will get breast cancer' and 'It is possible that I will get breast cancer' ($\alpha = .91$). Threat was defined as the mean score of severity and susceptibility, following the EPPM. Again, the response scales ranged from strongly disagree (1) to strongly agree (7).

Self-efficacy was measured with three items: 'I am able to perform self-exams to detect breast cancer', 'Performing self-exams is easy to do to detect breast cancer' and 'I can perform self-exams to detect breast cancer' ($\alpha = .90$). Response efficacy was measured with two items in conformity with the RBD scale: 'Performing self-exams works in detecting breast cancer in an early stage' and 'Self-exams are effective in detecting breast cancer in an early stage'. The third response efficacy item of the RBD scale says 'If I [do recommended response], I am less likely to get [health threat]'. This statement, however, cannot be applied to breast cancer: self-exams are used to detect the disease but cannot prevent it. That is why for response

efficacy two items from Ruiter, Verplanken, De Cremer, and Kok (2004) were added: 'The performance of self-exams will increase the chances to detect breast cancer in an early and treatable stage' and 'Detecting breast cancer early strongly improves the chances of being cured'. Cronbach's alpha for all four items was satisfactory ($\alpha = .68$). Efficacy was defined as the mean score of self-efficacy and response efficacy, following the EPPM.

Danger control responses

Attitude towards performing self-exams was measured by asking participants on a 7-point scale how useful, good, important, and effective they found self-exams (De Hoog, Stroebe, & De Wit, 2008). Cronbach's alpha was high ($\alpha = .88$).

Intention was measured with three items with a 7-point Likert scale ('In the next half year I will / intend to / plan to perform the self-exam monthly') following Fishbein and Ajzen (2010). Cronbach's alpha was high ($\alpha = .96$).

Fear control responses

McMahan, Witte, and Meyer (1998) distinguish three different fear control responses: defensive avoidance, message minimization, and perceived manipulation. For defensive avoidance, two items were asked, based on McMahan et al. (1998): 'When I hear of breast cancer, I block this information' and 'I do not want to read about breast cancer' ($\alpha = .85, r = .74$). For message minimization, three items were presented, derived from McMahan et al. (1998), assessing to what extent the participants thought the story was 'exaggerated', 'overblown', or 'overstated' ($\alpha = .91$). To measure to what extent participants felt manipulated, four questions were asked based on McMahan et al. (1998): 'the story is misleading', 'the story is distorted', 'the story tries to pressure me in a certain way' and 'the writer tries to manipulate me' ($\alpha = .68$). The overall alpha for the nine items measuring fear control was .80.

Trait anxiety

To measure the individual characteristic trait anxiety, Taylor's Manifest Anxiety Scale (MAS; 1953) and the State-Trait Anxiety Inventory (STAI; Spielberger, 1983) are often used. For reasons of brevity, four statements were chosen that can be found in both scales, namely: 'I am a nervous person', 'I feel that difficulties are piling up so that I cannot overcome them', 'I frequently find myself worrying about

something' and 'I have many fears compared to my friends' ($\alpha = .82$). Again, the response scale ranged from strongly disagree (1) to strongly agree (7).

2.3 Results

2.3.1 Overview of analyses

Pairwise correlations were calculated to test for the relationships between threat and danger control, and fear and fear control, as posited in proposition 2 respectively 6. In order to test proposition 7 and 12, a series of simple mediation analyses were performed using PROCESS (Hayes, 2013). In each analysis, first the total effect of the independent variable X on the outcome variable Y was determined. If the total effect was found to be significant, the two components of the total effect were assessed: the indirect effect ($X \rightarrow M \rightarrow Y$) and the direct effect ($X \rightarrow Y$). Hayes (2009) illustrates that, even when there is no significant total effect of X on Y , there may be an indirect effect of X on Y , for instance if one or more indirect paths carry the effect and those paths operate in opposite directions (pp. 413-414). In this study, however, we were only interested in the possible decomposition of a total effect if such a total effect actually proved to exist.

The macro used to test the simple mediation models does not provide p -values for indirect effects. According to Hayes (2013), however, if the 95% bootstrap confidence interval does not contain and is entirely above zero, there is clear evidence that the indirect effect is positive to a statistically significant degree (p. 109). Similarly, if the 95% confidence interval does not contain and is entirely below zero, there is clear evidence that the indirect effect is negative to a statistically significant degree. For reasons of brevity, we use the expression 'significant' in such cases.

2.3.2 Proposition 2: If efficacy is high, threat $\rightarrow$ danger control

The EPPM assumes that when efficacy is high, threat corresponds to danger control. Although the level of perceived efficacy was quite high in this study (response efficacy: $M = 5.59$, $SD = 0.83$; self-efficacy: $M = 4.83$, $SD = 1.40$), threat and attitude proved not to be related ($r(116) = .08$, $p = .40$), nor were threat and intention ($r(116) = .14$, $p = .15$).

2.3.3 Proposition 6: Fear → fear control

No significant correlation was found between fear and fear control ($r(111) = .00, p = .99$), nor between fear and the three separate fear control responses (defensive avoidance: $r(112) = .12, p = .22$; perceived manipulation: $r(112) = .03, p = .72$; message minimization: $r(113) = -.11, p = .27$).

2.3.4 Proposition 7: If efficacy is high, fear → threat → danger control

The EPPM assumes that when efficacy is high, fear can only be *indirectly* related to attitude and intention, that is through threat. As the level of perceived efficacy was quite high in this study (see 2.3.2), we tested the mediation models depicted in Figures 2.2a, b and c. The number of bootstrap samples was set to 5,000, as suggested by Hayes.

For attitude as outcome variable, the total effect of fear on *attitude* was not significant ($\beta = -.09, p = .45$). The total effect of fear on *intention* was significant ($\beta = .29, p < .01$). No evidence was found, however, for the proposed indirect effect of fear on intention through threat. When each of the components of threat were used as a possible mediator, the indirect effects were also not significant. A significant direct effect of fear on intention was found ($\beta = .28, p < .01$).

Figure 2.2a Unstandardized regression coefficients. * $p < .05$, ** $p < .01$. Total effect: $\beta = .29^{**}$.

Figure 2.2b Unstandardized regression coefficients. * $p < .05$, ** $p < .01$. Total effect: $\beta = .29^{**}$.

Figure 2.2c Unstandardized regression coefficients. * $p < .05$, ** $p < .01$. Total effect: $\beta = .29^{**}$.

2.3.5 Proposition 12: Trait anxiety → threat and efficacy → danger control and fear control

In order to examine whether trait anxiety influenced danger control (i.e. attitude and intention) or fear control through threat and efficacy, a parallel mediator model was tested. Again, the number of bootstrap samples was set to 5,000.

The total effect of trait anxiety on *attitude* was not significant ($\beta = .18, p = .06$). As Figure 2.3 illustrates, the total effect of trait anxiety on *intention* was significant ($\beta = .26, p < .01$). This effect was partly explained by the significant direct effect of trait anxiety on intention. Furthermore, a significant indirect effect of trait anxiety on intention through efficacy was found ($\beta = .07$). However, there was no significant indirect effect of trait anxiety on intention through threat.

Figure 2.3 Unstandardized regression coefficients. * $p < .05$, ** $p < .01$. Total effect: $\beta = .26^{**}$.

The total effect of trait anxiety on fear control² was not significant ($\beta = .00, p = .99$): trait anxiety did not prove to influence fear control.

² We also tested the mediation models for the fear control responses separately. We only found a significant total effect of trait anxiety on defensive avoidance ($\beta = .19$). The direct effect of trait anxiety on defensive avoidance was also significant, just as the indirect effect through efficacy ($\beta = -.07$). However, as the total effect for fear control was not significant, we consider these results as chance findings.

Table 2.2 Correlations and descriptive statistics for all variables

	Fear	Threat	Severity	Susceptibility	Efficacy	Self-efficacy	Resp. efficacy	Attitude	Intention	Fear control	Def. av.	Perc. man.	Mess. min.	Trait anxiety
<i>Fear</i>	-													
<i>Threat</i>	.06	-												
<i>Severity</i>	.06	.43**	-											
<i>Susceptibility</i>	.04	.93**	.08	-										
<i>Efficacy</i>	.01	.19*	.18	.14	-									
<i>Self-efficacy</i>	-.10	.13	.05	.12	.87**	-								
<i>Response efficacy</i>	.15	.19*	.26**	.10	.78**	.36**	-							
<i>Attitude</i>	-.07	.08	.03	.08	.09	.00	.16	-						
<i>Intention</i>	.25**	.14	.12	.10	.33**	.25**	.29**	.07	-					
<i>Fear control</i>	.00	-.26**	-.13	-.24**	-.35**	-.21*	-.38**	-.28**	-.25**	-				
<i>Defensive avoidance</i>	.12	-.13	-.03	-.13	-.17	-.14	-.16	-.09	.04	.44**	-			
<i>Perceived manipulation</i>	.03	-.18	-.08	-.17	-.26**	-.16	-.28**	-.23*	-.28**	.84**	.05	-		
<i>Message minimization</i>	-.11	-.28**	-.17	-.24**	-.32**	-.18	-.37**	-.28*	-.26**	.87**	.16	.62**	-	
<i>Trait anxiety</i>	.36**	.08	.20*	.00	.27**	.24*	.22*	-.18	.26**	.00	.18*	-.08	-.05	-
<i>M</i>	4.18	6.16	6.70	5.61	5.26	4.83	5.59	5.97	4.42	3.26	2.50	3.72	3.10	3.80
<i>SD</i>	1.19	0.68	0.49	1.23	0.89	1.40	0.83	1.40	1.35	0.97	1.42	1.11	1.47	1.37

Note. * $p < .05$, ** $p < .01$

2.3.6 Additional analyses

Additional exploratory analyses were conducted in an attempt to determine which variables were associated with danger control and fear control. Table 2.2 presents correlations and descriptive statistics for all variables.

No significant correlations were found between attitude and the concepts or the outcomes of the EPPM. Regression analyses with attitude as dependent variable produced no significant contribution of any of the threat or efficacy components.

A positive correlation between fear and the intention to perform self-exams was found ($r(113) = .25, p < .01$), indicating that the more fear receivers experienced, the higher their intention was to perform a breast self-exam. Furthermore, self-efficacy and response efficacy were positively and significantly related to intention ($r(116) = .25, p < .01$ and $r(116) = .29, p < .01$, respectively). Regression analysis with the components of threat and efficacy as predictors and intention as dependent variable showed that response efficacy was the only significant predictor of intention (see Table 2.3). The contribution of self-efficacy was marginally significant ($\beta = .17, p = .08$).

Table 2.3 Results regression analysis with intention as dependent variable

Predictor	b	SE b	β	Sig.
Severity	0.15	0.26	.06	.55
Susceptibility	0.06	0.10	.06	.54
Response efficacy	0.33	0.16	.21	.04
Self-efficacy	0.16	0.09	.17	.08

Note. $R^2 = .12$ ($p < .01$).

Finally, both attitude and intention were negatively and significantly related with fear control ($r(115) = -.28, p < .01$ and $r(115) = -.25, p < .01$, respectively), specifically with perceived manipulation ($r(115) = -.23, p < .05$ and $r(115) = -.28, p < .01$, respectively) and message minimization ($r(116) = -.28, p < .05$, and $r(116) = -.26, p < .01$, respectively): the more receivers perceived the message as exaggerating or

manipulating, the less they thought self-exams are good and the less they reported they were actually planning to perform the self-exam.

2.4 Discussion

The Extended Parallel Process Model (Witte, 1992; 1998) is based on twelve propositions. Popova (2012) showed that several propositions received mixed support or were tested only minimally. This study aimed to test four propositions for which mixed support was found.

Of these four propositions, only one proposition received some support in this study, namely the one concerning the role of individual characteristics. According to Witte (1998), individual characteristics may only influence outcomes *indirectly*, as mediated by perceived threat and efficacy (proposition 12). In our study, trait anxiety proved to influence intention, as a total effect of trait anxiety on intention was found. This effect was explained by an indirect effect of trait anxiety on intention through *efficacy*, as the EPPM claims, but *threat* did not prove to mediate the effect of trait anxiety on intention. Trait anxiety was found to also be significantly and directly related to intention, which contradicts the proposition and also differs from what Witte and Morrison (2000) report. They found that one's level of anxiety did influence threat and efficacy, but trait anxiety did not influence attitudes or intentions. With regard to fear control, our results did not support the proposition: there was no significant total effect of trait anxiety on fear control responses.

The results with regard to the three remaining propositions we tested were also not in line with the EPPM. It was found that neither perceived severity nor perceived susceptibility was correlated with fear or danger control. This finding contradicts proposition 2 that assumes threat and intention to be related. Furthermore, proposition 6 was not supported in this study, as fear was not related to fear control responses. Finally, no evidence was found for an indirect effect of fear on intention through threat, which contradicts proposition 7 of the EPPM.

We did find that fear directly and positively influenced the intention to perform a breast self-exam, which is promising for the effectiveness of fear appeals. Our study further suggests that efficacy plays a more important role than threat in the persuasive effects of fear appeals, as both components of efficacy appeared to correlate positively with intention, while both components of threat did not. Apparently, the more receivers perceive a recommended action as effective and

feasible, the more likely it is that they actually plan to perform the action. Ruiters, Kessels, Peters and Kok (2014) also conclude that efficacy is more important than threat, after they summarized several meta-analyses on fear appeals. Additionally, Rintamäki and Yang (2013) demonstrated that the inclusion of response costs (i.e. perceived drawbacks associated with a behavior), along with the efficacy components, improved the predictive power of the EPPM, which should be further researched.

A number of limitations must be acknowledged. First, this study was set up as a correlational study, which made it impossible to test the propositions that include causal relations. For this goal, experimental research is needed. Second, the results are based on one story addressing one specific health theme, namely breast cancer, aimed at only females. Another story, health theme or audience might have led to different results. Future research could address this limitation by using different stories on different health topics for different audiences.

In conclusion, little support was found for the propositions of the EPPM, which – again – questions the appropriateness of the EPPM. Other researchers, for instance Rintamäki and Yang (2013) and So (2013), suggest to revise the EPPM by including more variables to the model or by scrutinizing the proposed relationships between the EPPM-variables. That might be a good idea indeed.

Appendix A: List of EPPM's propositions

	Propositions of the EPPM as formulated by Witte (1998, p. 439)
1	When perceived threat is low, regardless of perceived efficacy level, there will be no further processing of the message
2*	As perceived threat increases when perceived efficacy is high, so will message acceptance
3	Cognitions about threat and efficacy cause attitude, intention, or behavior changes (i.e., danger control responses)
4	As perceived threat increases when perceived efficacy is low, people will do the opposite of what is advocated
5	As perceived threat increases when perceived efficacy is moderate, message acceptance will first increase, and then decrease, resulting in an inverted U-shaped function
6*	Fear causes fear control responses (i.e. message threat → perceived threat → fear → fear control responses (Witte, 1992, p. 343))
7*	When perceived efficacy is high, fear indirectly influences danger control outcomes, as mediated by perceived threat
8	When perceived efficacy is high, there is a reciprocal relationship between perceived threat and fear
9	Cognitions about efficacy are unrelated to fear control responses
10	Cognitions about threat are indirectly related to fear control response
11	Perceived threat determines the intensity of a response (how strong the response) and perceived efficacy determines the nature of the response (either fear or danger control)
12*	Individual differences influence outcomes indirectly, as mediated by perceived threat and efficacy

* examined in this study

Appendix B: Material on breast cancer

My name is Myrthe. I'm 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 boyfriend, 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, breast cancer to be specific. I knew it is the most common cancer among women, but I had no clue that young women could also get it. I started having some pain in my left breast. After about a month, I finally went to the doctor because my mother made me go. To my horror, he found cancer.

Metastasized

Only one week after the diagnosis, my left breast was removed. But that didn't stop the misery. I could no longer have sex with my boyfriend because I didn't feel like it. With only one breast, I was so embarrassed. We broke up last week. I dropped out of my college, fraternity, and hockey 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 out to my liver, and the doctor gives me only a small chance of beating it. I keep thinking, I'm only 22 years old, this isn't supposed to be happening!

Too afraid

If I had discovered the tumor earlier, I might have really improved my chances of beating cancer. I had heard of the breast self-exam to check for tumors, but I was afraid to find something. None of my girlfriends ever talked about it, and I guess none of them did the exam either. Now, what do I have to show for my scared attitude? No boyfriend, 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 fear keep you from doing the self-exam. It's really simple: once a month, a week after your menstruation, feel around the entire breast area in circular motions. Feel for any hard lumps. If you have pain in your breasts, or if you find a lump, go see your doctor immediately. He tells me there is a big chance of survival if it's caught early. Learn the BSE and do it once a month. It will save your life!

CHAPTER 3

“Don’t make my mistake”:

On the processing of narrative fear appeals

This chapter is based on:

Ooms, J.A., Jansen, C.J.M., Hommes, S., & Hoeks, J.C.J. (2017). "Don't make my mistake": On the processing of narrative fear appeals. *International Journal of Communication*, 11, 4924-4945.

Abstract

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.

3.1 Introduction

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 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.

3.1.1 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).

3.1.2 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.

3.1.3 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 3.1. 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 3.1 Hypothesized model

3.2 Method

3.2.1 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).³ 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 cancer was presented to women and men, creating a total of four research samples.⁴ 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.

3.2.2 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 3.1 lists the characteristics per study.

³ 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>).

⁴ 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.

Table 3.1 Characterization of the four samples

Characteristic	Breast cancer (women)	Testicular cancer (men)	Skin cancer (women)	Skin cancer (men)
<i>n</i>	106	88	241	129
Age (years), <i>M (SD)</i>	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

3.2.3 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.

To measure the emotions⁵ 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.⁶ 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

⁵ We also measured the emotions of anger, disgust and happiness, but a linear regression analysis showed that these emotions did not significantly predict intention (all *p*-values > .14). As earlier research (see section 3.1.2. for an overview) also showed that especially fear, compassion, sadness and surprise are relevant in a cancer context, we decided to focus only on these emotions.

⁶ 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.

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.

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 ($\alpha = .90$). 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 Ruiters, 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 ($\alpha = .68$).

3.2.4 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.

3.3 Results

3.3.1 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 3.2) 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.⁷ 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 ($N = 564$).

3.3.2 Test of the hypothesized model

Our next step was to test the hypothesized model (as depicted in Figure 3.1) 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 3.2).

⁷For 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 3.2 Final measurement model, based on data of complete group ($N = 564$).
AFT = attention-focused transportation.

Table 3.2 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.

3.3.3 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.⁸ Only for women who read the story about skin cancer χ^2/df and *RMSEA* were slightly above some of Kline's criteria (see Table 3.3). Figure 3.3 shows the final model. Turning to the hypotheses, AFT turned out to be positively associated with identification ($\beta = .64, p < .001$), as predicted by H1. Consistent with H2a, H3a and H5a, AFT increased the arousal of fear ($\beta = .51, p < .001$), sadness ($\beta = .19, p < .001$), and compassion ($\beta = .41, p < .001$). Identification significantly predicted only compassion ($\beta = .29, p < .01$), supporting H5b, but invalidating H2b–4b.

Table 3.3 Fit indices of the final model

Group	χ^2	<i>df</i>	χ^2/df	<i>CFI</i>	<i>SRMR</i>	<i>RMSEA</i>	90% <i>CI</i>	<i>p</i>
Recommended values	–	–	<3.0	>.90	<.10	<.08	-	>.05
Complete group	20.76	10	2.08	.991	.027	.044	[.016, .070]	.613
Breast cancer	14.73	10	1.47	.958	.051	.067	[.000, .135]	.308
Testicular cancer	9.12	10	0.91	1.00	.044	.000	[.000, .109]	.683
Skin cancer (women)	31.16	10	3.12	.962	.044	.094	[.058, .132]	.025
Skin cancer (men)	10.36	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.

⁸ 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.

Figure 3.3 Final model ($N = 564$) with standardized estimates significant at $p < .01$ (error terms not shown).

Mean scores on perceived efficacy turned out to be quite high⁹ (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 ($\beta = .26$, $p < .001$), 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 ($\beta = .19$, $p < .001$). Finally, the final model implies that AFT indirectly may lead to intention via fear. Bootstrapping indeed revealed a significant indirect path ($\beta = .17$, 95% CI [.132, .231]).

3.3.4 Multigroup analysis

To determine whether the relationships in the model based on the complete group (see Figure 3.3) 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

⁹ 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, $M = 4.43$, $SD = 1.47$.

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 ($\beta = .35, p < .001$), whereas for men who read the story about testicular cancer, this relationship was not significant ($\beta = -.02, p = .89$). 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 ($\beta = .45, p < .001$) than for women who read the story about breast cancer ($\beta = .27, p < .05$). No other significant differences were found, indicating that most paths in the model were consistent between the four samples.

3.4 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 3.1), 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 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.

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: 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; * $p < .05$; ** $p < .01$.

CHAPTER 4

The role of similarity in narrative persuasion

This chapter is based on:

Ooms, J., Hoeks, J., & Jansen, C. (2019). De rol van gelijkenis bij narratieven. In Jansen, C. (Red.), *Duurzame Taalbeheersing / Tijdschrift voor Taalbeheersing* 41(1), 229-242.

Abstract

This chapter presents two studies on the role of similarity in the processing of narratives. In Experiment 1 ($N=83$), female students were presented with one of two versions of a story about the severe consequences of breast cancer. In one version, the protagonist was a 22-year-old female student ('similar' condition); in the other version, the protagonist was a 59-year-old working woman ('dissimilar' condition). Experiment 2 ($N=62$) was an online replication of the first study, with an added measure of *perceived* similarity.

Neither in Experiment 1 nor in Experiment 2 significant differences were found between the two versions on identification, attitude, or intention. Mediation analyses in Experiment 2 did show that the manipulation of similarity had a significant indirect influence on identification, transportation, emotions, and intentions, via perceived similarity. These findings suggest that manipulating similarity may influence persuasion, but only when this similarity is perceived as such by the participants.

4.1 Introduction

Narratives can influence people's beliefs, attitudes, intentions, and actual behavior (Braddock & Dillard, 2016). These effects may be achieved by *transporting* receivers into the story (Green & Brock, 2000), and by fostering *identification* with the protagonist (Cohen, 2001). Given their key role in narrative persuasion, it is of great interest to know how transportation and identification can be increased. Slater and Rouner (2002) suggested that the extent to which the protagonist is presented as *similar* to the participants can influence both identification and transportation. Empirical evidence for the effects of similarity on transportation and identification, and consequently persuasion is mixed, however. De Graaf, Sanders, and Hoeken (2016) reviewed 11 studies that compared a narrative with a similar protagonist to a narrative with a dissimilar protagonist. Most of the studies manipulated objective characteristics, such as gender or living conditions. The authors report that similarity hardly ever affected identification or transportation, let alone persuasive outcomes such as attitude or behavioral intention. This finding was corroborated by Cohen, Weimann-Saks, and Mazor-Tregerman (2017) who found no effects for their four different manipulations of similarity (nationality, sex, age, and city of residence) on identification or persuasion measures. However, a number of other recent studies (e.g., Chen, Bell, & Taylor, 2016; Hoeken, Kolthoff, & Sanders, 2016) suggest that similarity does, under certain conditions, influence identification and the persuasiveness of narratives. It is even the case that in almost identical experiments different results were found for similarity. Chen, Bell, and Taylor (2016), for example, found significant, positive effects of a protagonist with the same age and of the same gender as the participants of their study, while Chen, Bell, and Taylor (2017) found no significant differences in a highly comparable experiment.

It is apparent that more research into the effects of similarity is needed. That is why we conducted two experiments into the effects of manipulated similarity on identification, transportation, and the persuasive outcomes of narratives. In addition, we investigated the effects of manipulated similarity on emotions, which in turn can contribute to narrative persuasion (see also Igartua & Fiuza, 2018). Our first research question was:

RQ1: What are the effects of similarity on identification, transportation, emotions, and persuasive outcomes?

To gain a better understanding of the process that leads to possible effects of similarity, the following research question was added in Experiment 2:

RQ2: Does *perceived* similarity mediate the relationship between actual similarity on the one hand and identification, transportation, emotions, and persuasive outcomes on the other hand?

4.2 Experiment 1

We presented female students with one of two versions of a narrative. In one version, the protagonist was similar to the students, in the other version the protagonist was dissimilar. After reading the narrative, questions were asked about transportation, identification, emotions, attitude, and intention.

4.2.1 Method

Materials

The narrative's topic was breast cancer, which is the most frequent form of cancer in women. The protagonist describes being confronted with the severe physical and personal consequences of breast cancer and with an uncertain future. In the last paragraph, the protagonist advises the readers to perform a monthly self-exam to detect cancer at an early stage.

Two versions of this breast cancer story were created that differed with respect to the age of the protagonist and the living conditions that are related to age (student versus work; boyfriend versus husband; apartment versus house). In the similar condition, the protagonist was a 22-year-old female student. In the dissimilar condition, the protagonist was a 59-year-old working woman.¹⁰ Both stories contained approximately 500 words (available upon request from the first author). The first paragraph of each story is shown in Table 4.1.

¹⁰ In both studies, we included a third text as an exploratory condition. This text included general information about the possible effects of breast cancer on women, providing no details of age or living conditions. As in this text no specific protagonist was presented, it did not meet the definition of a narrative as a representation of events involving one or more *characters* (see, for instance, Abbott, 2002). As in the current paper we want to investigate the role of similarity, we focus on the comparison of the similar version with the dissimilar version.

Table 4.1 First paragraph of the two versions

Similar version	Dissimilar version
My name is <u>Myrthe</u> . I am <u>22</u> years old and I <u>study law at the University of Groningen</u> . At this point in my life, I thought I had everything under control - I had a great <u>boyfriend</u> , <u>solid job prospects</u> , a nice <u>apartment</u> , enough money, and loyal friends. What I didn't have under control was developing cancer. But not just any cancer, breast cancer to be specific.	My name is <u>Gerda</u> . I am <u>59</u> years old and I <u>work part time in home care</u> . At this point in my life, I thought I had everything under control - I had a great <u>husband</u> , a <u>good job</u> , a nice <u>house</u> , enough money, and loyal friends. What I didn't have under control was developing cancer. But not just any cancer, breast cancer to be specific.

Note. The underlined text indicates differences between the story versions

Measures

Below, 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).

Transportation was measured with six items in total. Five items were adopted from Moyer-Gusé and Nabi (2010), which in turn originated from Green and Brock's (2000) transportation scale: "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", "The narrative affected me emotionally", "I found my mind wandering while reading the narrative" (reverse-scored), and "I wanted to learn how the narrative ended". In addition, one item from De Graaf, Sanders, Beentjes, and Hoeken (2007) was added: "My attention was fully captured by the story". Cronbach's alpha for all six items was high ($\alpha = .87$). See Ooms, Jansen, Hommes, and Hoeks (2017) for a discussion of the conceptual overlap between items measuring transportation and (narrative) attention.

Identification was assessed with three of the five 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". Cronbach's alpha was satisfactory ($\alpha = .77$). The remaining two

items of Tal-Or and Cohen's identification scale were not suitable for the relatively short stories we used in this study.

As suggested by Ooms et al. (2017), three emotions seem specifically relevant in the context of cancer messages: fear, sadness, and compassion. In order to measure these emotions, the statement "While reading the story, I felt [emotion]" was presented, 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, Plotnick, Godbold, Freimuth, and Edgar (1996): "afraid", "scared", "worried", "anxious" for fear ($\alpha = .91$), and "sad", "dreary", "dismal" for sadness ($\alpha = .93$). Based on Oliver, Dillard, Bae, and Tamul (2012), we took the items "pity", "compassion" and "sympathy" to measure compassion ($\alpha = .85$).

Attitude toward performing breast self-exams was measured by asking participants by means of semantic differentials how "useful", "good", "important", and "effective" they found monthly self-exams ($\alpha = .92$). These semantic differentials were derived from De Hoog, Stroebe, and De Wit (2008) who also measured attitude toward a health behavior.

Intention to perform breast self-exams was measured by three items following Fishbein and Ajzen (2010): "In the next half year I plan to / intend to / will perform the breast self-exam monthly" ($\alpha = .97$).

Participants and procedure

83 female students of the University of Groningen (The Netherlands) were randomly assigned to one of the two story versions. Participants voluntarily filled out a paper-and-pencil questionnaire during several first-year courses of different programmes. Their mean age was 20.43 ($SD = 2.24$), ranging from 18 to 28 years.

4.2.2 Results

Table 4.2 shows means and standard deviations by condition. Table 4.3 shows the correlations between the dependent variables. T-tests for independent samples were performed to test the effects of similarity on each dependent variable. The statistical power ($1-\beta$) of these tests was, given a sample size of $N = 83$ and two-sided testing at significance level .05, under the assumption of a large effect ($d = .80$)

.95, under the assumption of a medium size effect ($d = .50$) .61, and under the assumption of a small effect ($d = .20$) .15.¹¹

Table 4.2 Means (standard deviations) of dependent variables, measured on a 7-point scale - Experiment 1

	Similar version ($n = 42$)	Dissimilar version ($n = 41$)
Identification	4.79 (1.17)	4.84 (1.20)
Transportation	4.51 (1.30)	4.56 (1.24)
Attitude toward self-exam	5.71 (1.76)	5.98 (1.40)
Intention to perform self-exam	4.28 (1.79)	3.83 (1.27)
Fear	3.95 (1.25)	3.39 (1.40)
Sadness	3.72 (1.71)	3.62 (1.61)
Compassion	5.71 (0.98)	5.31 (1.23)

Table 4.3 Correlation matrix - Experiment 1

	1	2	3	4	5	6	7
1. Identification	-						
2. Transportation	.51**	-					
3. Attitude toward self-exam	.23*	.16	-				
4. Intention to perform self-exam	.41**	.39**	.40**	-			
5. Fear	.17	.45**	.11	.25*	-		
6. Sadness	.27*	.44**	.06	.20	.44**	-	
7. Compassion	.30**	.29**	.23*	.36**	.22	.29*	-

* $p < .05$, ** $p < .01$

No significant effects of version were found on identification ($p = .84$), transportation ($p = .86$), compassion ($p = .11$), sadness ($p = .81$), attitude ($p = .45$) or intention ($p = .19$). Participants tended to report higher levels of *fear* after reading

¹¹ Power analyses were computed with software tool G*Power 3.1 (Faul, Erdfelder, Buchner & Lang, 2007).

the similar version ($M = 3.95$) than after reading the dissimilar version ($M = 3.39$), a difference that was marginally significant ($t(78) = 1.89, p = .06, d = 0.42$).

4.2.3 Discussion

In this experiment, female students were presented a story with a protagonist similar in age and living conditions (22-year-old female student) or dissimilar (59-year-old working woman). The two versions did not show significant differences, suggesting that similarity with the protagonist simply does not matter to the participants in terms of identification, transportation, attitude, and intended behavior.

It should be noted, however, that we did not measure if our manipulation of similarity was perceived as such. It can be useful to examine the extent to which manipulated message features are perceived by message receivers, not as a manipulation check (which is technically unnecessary), but to explore possible mediation effects between the manipulation and the dependent variables (O’Keefe, 2016; Tao & Bucy, 2007). As in Experiment 1 the message was aimed at only one behavior, the performance of self-exams, it is unclear if differences in intention would have been found if the recommended behavior concerned helping someone else. That is why we conducted a new experiment, including measures of *perceived similarity* and the *intention to donate to cancer charity*.

4.3 Experiment 2

Experiment 2 was a direct replication of Experiment 1. Female students were presented the same materials as in Experiment 1. After reading the story, they were asked questions about identification, transportation, emotions, attitude and intentions, and now also perceived similarity.

4.3.1 Method

Measures

To the list of measures of Experiment 1 (Cronbach’s alphas all $> .84$), two variables were added: perceived similarity and the intention to donate to cancer charity.

Perceived similarity was measured with the four items of the *attitude homophily scale* (McCroskey, Richmond, & Daly, 1975): “X thinks like me”, “X behaves like me”, “X is similar to me”, and “X is like me” ($\alpha = .95$).

Intention to donate was measured with three items, again based on Fishbein and Ajzen (2010): “In the next half year I plan to / intend to / will donate to a cancer fund” ($\alpha = .99$).

Participants and procedure

Experiment 2 was conducted online using Qualtrics software. The link to the questionnaire was distributed via social media. In total, 88 participants, all female students, were randomly assigned to one of the two conditions.

A pretest suggested that in this online version, participants would at least need 25 seconds to finish reading the story. For this reason, data from respondents who spent less than 25 seconds ($n = 23$) were excluded. In addition, data from respondents were excluded who spent more than 180 seconds on the page ($n = 3$). This resulted in a final sample of 62 female students from different universities in the Netherlands (Mean age = 23.84, $SD = 2.44$, ranging from 18 to 30 years).

4.3.2 Results

Means and standard deviations of all measures are presented in Table 4.4. Correlations between the dependent variables are presented in Table 4.5. The statistical power ($1-\beta$) of these tests was, given a sample size of $N = 62$ and two-sided testing at significance level .05, under the assumption of a large effect ($d = .80$) .87, under the assumption of a medium size effect ($d = .50$) .49, and under the assumption of a small effect ($d = .20$) .12.

Table 4.4 Means (and standard deviations) of dependent variables, measured on 7-point scale - Experiment 2

	Similar version (n = 33)	Dissimilar version (n = 29)
Perceived similarity	3.52 (1.60)*	2.49 (1.31)*
Identification	5.14 (1.24)	4.57 (1.19)
Transportation	5.01 (1.01)*	4.12 (1.08)*
Attitude toward self-exam	6.24 (1.15)	6.26 (0.98)
Intention to perform self-exam	4.12 (1.43)	3.93 (1.48)
Intention to donate	2.78 (1.79)	2.98 (1.65)
Fear	4.92 (1.30)*	4.17 (1.13)*
Sadness	4.07 (1.82)	4.37 (1.42)
Compassion	5.43 (1.38)	5.32 (1.23)

Note. Means with an asterisk differ significantly.

Table 4.5 Correlation matrix - Experiment 2

	1	2	3	4	5	6	7	8	9
1. Perceived similarity	-								
2. Identification	.64**	-							
3. Transportation	.48**	.59**	-						
4. Attitude toward self-exam	.06	.21	.10	-					
5. Intention to perform self-exam	.35**	.36**	.09	.31*	-				
6. Intention to donate	.25	.32*	.13	.21	.37**	-			
7. Fear	.33*	.43**	.33**	-.02	.02	-.03	-		
8. Sadness	.30*	.37**	.35**	-.06	.04	.19	.54**	-	
9. Compassion	.32*	.57**	.36**	.26*	.27*	.30*	.37**	.52*	-

* $p < .05$, ** $p < .01$

A t-test for independent samples revealed a significant effect of version on perceived similarity ($t(58) = 2.69$, $p < .01$, $d = 0.79$): perceived similarity was higher for participants who read the similar version ($M = 3.52$) than for participants who

read the dissimilar version ($M = 2.49$). We found no significant differences between the two versions in identification, attitude or intentions. A significant difference was found, however, between the two versions in level of transportation: participants reported more transportation after reading the story with a similar protagonist ($M = 5.01$) than after reading the story with a dissimilar protagonist ($M = 4.12$; $t(60) = 3.35$, $p < .05$, $d = 0.62$). With regard to the measured emotions, a significant difference in *fear* was found ($t(60) = 2.42$, $p < .05$, $d = 0.67$): participants in the similar condition reported more fear ($M = 4.92$) than participants in the dissimilar condition ($M = 4.17$).

Mediation analyses were performed using PROCESS (Hayes, 2013). We tested if perceived similarity mediated the effect of the manipulation (0 = dissimilar condition; 1 = similar condition) on the eight dependent variables (see Figure 4.1). The number of bootstrap samples was set to 5,000.

$a \times b$ indirect effect

c' direct effect

c total effect

Figure 4.1 Mediation model

Table 4.6 Results mediation analyses, with manipulation of similarity as predictor (X) and perceived similarity as mediator (M)

	Path a	Path b	Path c'	Total effect	Indirect effect		
					CI 95%		
Y:	β	β	β	β	β	<i>lower limit</i>	<i>upper limit</i>
Transportation	1.09*	0.27*	0.53	0.82*	0.30	.1206	.6047
Identification	1.09*	0.51*	0.05	0.61	0.56	.1869	1.0038
Fear	1.09*	0.22	0.53	0.77*	0.24	-.0610	.7634
Sadness	1.09*	0.40*	-0.50	-0.06	0.44	.1072	.9811
Compassion	1.09*	0.33*	-0.11	0.24	0.36	.0747	.8306
Attitude towards self-exams	1.09*	0.04	-0.07	-0.02	0.05	-.0753	.2668
Intention to perform self-exam	1.09*	0.36*	-0.28	0.12	0.40	.1024	.8869
Intention to donate	1.09*	0.32	-0.48	-0.12	0.35	.0348	.9739

* $p < .01$

In line with the results of the t-test, a total effect of the similarity manipulation only existed on transportation and on fear. However, even when there is no significant total effect of X on Y, there may be an *indirect* effect of X on Y (Hayes, 2009, pp. 413-414). As can be seen in Table 4.6, significant indirect effects were found of the manipulation on transportation, identification, compassion, sadness, the intention to perform self-exams and the intention to donate through perceived similarity. The regression coefficient of every indirect effect was positive, just like the separate paths *a* and *b*. This means that the narrative with the similar protagonist led to more

perceived similarity than the narrative with the dissimilar protagonist, which in turn led to higher scores on transportation, identification, compassion, sadness, the intention to perform breast self-exams and the intention to donate to cancer charity.

4.3.3 Discussion

In Experiment 2, we investigated the effect of our manipulation of similarity on identification, transportation, emotions, and persuasive outcomes, and now also on perceived similarity. For this latter variable, a significant difference was found: participants deemed the protagonist in the similar version to be significantly more similar to themselves than the protagonist in the dissimilar version. As in Experiment 1, however, respondents reported equal levels of identification for both versions, above the midpoint of the scale. These results suggest that even though a protagonist is objectively dissimilar, and also seen as such, readers may still identify with her. While no significant effects were found of similarity on attitude or intentions either, the participants reported higher levels of transportation and fear when they read about the similar protagonist.

Experiment 2 was also conducted to examine the possible mediating role of perceived similarity. To this end, mediation analyses were conducted with the similarity manipulation as predictor, perceived similarity as mediator, and the dependent variables separately as outcomes variables. It was found that perceived similarity influenced the effect of the manipulation on transportation, identification, compassion, sadness, the intention to perform self-exams and the intention to donate indirectly and positively.

4.4 Results Experiment 1 and 2

To test if significant differences exist between the results of the two experiments, a multivariate analysis of variance was performed with condition and experiment as factors. The statistical power ($1-\beta$) of these tests was, given a sample size of $N = 145$ and significance level .05, under the assumption of a large effect ($f = .40$) .99, under the assumption of a medium size effect ($f = .25$) .85, and under the assumption of a small effect ($f = .10$) .22.

There was a significant multivariate main effect of both condition ($F(7,130)=2.65, p < .05$) and experiment ($F(7,130) = 3.36, p < .005$). Univariate tests revealed that both condition ($F(1,136) = 9.32, p < .005$) and experiment ($F(1,136)=$

15.24, $p < .001$) led to significant differences in fear. Participants in the similar condition ($M = 4.39$) reported more fear than participants in the dissimilar condition, ($M = 3.70$), and participants of Experiment 2 experienced more fear ($M=4.57$) than participants of Experiment 1 ($M = 3.68$). Although the multivariate interaction effect was only marginally significant ($F(7, 130)=1.78$, $p = .097$), there was a significant univariate interaction effect on transportation: $F(1,136)=5.43$, $p=.021$. In line with the results of the separate experiments, the difference in transportation was only significant in Experiment 2 and not in Experiment 1.

4.5 General discussion

In this paper, we examined the effects of similarity between reader and protagonist on transportation and identification, on emotions, and on persuasive outcomes of narratives. Two experiments were conducted in which we varied the extent to which the protagonist was presented as similar to the participants. The results of both Experiment 1 and Experiment 2 were highly comparable. Both experiments showed that the similarity manipulations did not influence the level of identification. Surprisingly, participants reported equal (and rather high) levels of identification after reading a story with a similar protagonist (i.e., a young student) and a dissimilar protagonist (i.e., an older working mother). Apparently, having characteristics in common with the protagonist is not at all necessary for identifying with the protagonist. Our findings corroborate the recent findings of Cohen et al. (2017) even though our narratives were considerably shorter than theirs and on a different topic. Furthermore, in both studies no significant differences were found between the two story versions in measures of attitude or intention.

Contrary to the results of Experiment 1, we did find some significant differences between the two versions in Experiment 2. Participants felt more transported and experienced more fear when they read about the similar protagonist. The difference in transportation might be explained by the way the experiments were conducted. It could be the case that in the second experiment, which was conducted online, respondents were more able to focus on the text and read it more carefully, because they were at home instead of in a lecture room like the participants in the first experiment. In future studies, we might ask participants about the situation in which they filled out the questionnaire, and, if possible, ascertain that the study is conducted in a quiet place.

Although in both experiments nearly no total or direct effects of condition were found, in Experiment 2 the similarity manipulation proved to influence transportation, identification, emotions, and both intentions *indirectly*: the story with the similar protagonist led to more perceived similarity, which in turn positively influenced transportation, identification, compassion, sadness, intention to perform self-exams and the intention to donate. This suggests that positive effects of similarity manipulation only exist when receivers actually perceive themselves as similar to the story's protagonist. Future studies should explore strategies to achieve high scores of perceived similarity. Perhaps more specific information leads to stronger effects of manipulated similarity, especially if the information depicts the setting of the story, such as the location it takes place (De Graaf et al., 2016, p. 110). In this study, we manipulated, besides age, also some living conditions of the protagonist (student with apartment versus working woman with house), but perhaps the setting must be specified in more detail to lead to more substantial differences in perceived similarity.

In future studies, it may also be wise to involve more participants per condition, in order to be able to also detect small or medium size effects in reality. The statistical power of the analyses in this study only allowed detection of large effects. With a larger number of participants, it is also possible to perform more advanced path analyses, to examine the mutual relationships between the dependent variables and test, for example, if transportation influences persuasiveness via emotions (cf. Green & Brock, 2000). We performed such analyses in a follow-up study into the effects of manipulated similarity. The results of this studies will be published elsewhere.

CHAPTER 5

“Hey, that could be me”:

The role of similarity in narrative persuasion

This chapter is based on:

Ooms, J., Hoeks, J., & Jansen, C. (2019). “Hey, that could be me”: The role of similarity in narrative persuasion. *PLoS ONE*, 14(4), 1-18.

Abstract

Stories are often used in health communication because of accumulating evidence of their potential to affect people's attitudes and health behavioral intentions. Similarity between the reader and the story's protagonist appears to positively influence narrative persuasion, but the exact role of similarity on persuasive outcomes is debated, as some research finds clear effects of similarity manipulations whereas others do not. Possibly, these mixed results were found because the similarity manipulations were not always relevant to the topic of the story. We conducted an experiment ($N = 582$) in which we varied the age and gender of the protagonist, features that were of central relevance to the story's topic, namely breast cancer versus testicular cancer. There were two groups of participants: 324 students (mean age: 21.46 years) and 258 older adults (mean age: 56.83 years). Age similarity (but not gender similarity) had an effect on identification with the protagonist, transportation (i.e. the experience of being absorbed into a story), and the intention to donate, but only for students. For older adults, age or gender of the protagonist did not seem to matter, as nearly no differences in persuasive measures were found. As far as the underlying mechanism is concerned, the results of structural equation modeling showed that the concept of 'perceived similarity' would be a relevant addition to models of narrative persuasion, as it was significantly related to the narrative processes of transportation and identification, which, in turn, predicted attitudes and behavioral intentions, both directly - in the case of transportation - or indirectly, via the emotion of compassion. We conclude that both manipulated and perceived similarity are important for narrative persuasion, and that it should be kept on the research agenda of health communication.

5.1 Introduction

Stories, or narratives, are increasingly studied in a health context by scholars from different disciplines (Lucius-Hoene, Holmberg, & Meyer, 2018; De Graaf, Sanders, & Hoeken, 2016). A well-known type of narrative in this domain is the *illness narrative* - also referred to as health narrative, testimonial, anecdote or patients story - which can be defined as a “first-person story about experiences with illness and its personal consequences” (Lucius-Hoene, Breuning, & Helfferich, 2018, p. 28). Illness narratives can thus be seen as a form of meaning making which enables patients to give voice to their suffering (Frank, 1997; Kleinman, 1988). However, these narratives can also help other people in the decision making process concerning their own health.

Empirical research in persuasive health communication has shown that narratives have the potential to affect people’s attitudes and health behavioral intentions (Snyder et al., 2004; Shen, Sheer, & Li, 2015). Such effects may be achieved by being *transported* into the narrative (Green & Brock, 2000), and by *identification* with the protagonist (Cohen, 2001). Transportation is defined as “a convergent process, where all mental systems and capacities become focused on events occurring in the narrative” (Green & Brock, 2000, p. 701). Identification is “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). Given the key roles of these two concepts in narrative persuasion, it is of great interest to know how transportation and identification can be maximized. It has been suggested that the extent to which the protagonist in a narrative is perceived as *similar* to the readers can positively influence both identification and transportation (Slater & Rouner, 2002). Though similarity is sometimes seen as an integral part of identification (Murphy et al., 2011), it has been convincingly argued that they are conceptually and empirically distinct constructs (Eyal & Rubin, 2002; Moyer-Gusé & Nabi, 2010): Identification is a process whereby a viewer or reader experiences the narrative from the inside, while perceived similarity involves the viewer or reader acting as an external observer to the narrative, thus from the outside (Cohen, 2001; Eyal & Rubin, 2002; Moyer-Gusé & Nabi, 2010).

Empirical evidence for the effects of *similarity manipulations* on transportation, identification, and, subsequently, persuasion is mixed, however (De Graaf et al., 2016). Nevertheless, as several studies show a positive correlation

between perceived similarity and identification (Moyer-Gusé & Nabi, 2010; Dillard & Main, 2013; Chen, Bell, & Taylor, 2017), Chen et al. (2017) conclude that “the need to develop other strategies for fostering *similarity perceptions* remains a high research priority” (p. 710). The current paper answers this call by investigating the effects of manipulated similarity on perceived similarity, identification and transportation, and on persuasive outcomes of narratives. Moreover, we look into the mechanisms behind the potential persuasive impact of perceived similarity.

5.1.1 Manipulated similarity and perceived similarity

The role of similarity in narrative persuasion has received substantial attention in the literature. De Graaf et al. (2016) performed a systematic review on studies that compared a narrative with a similar protagonist to a narrative with a dissimilar protagonist. They found that similarity manipulations hardly ever affected identification, transportation, or persuasion (i.e. beliefs, attitudes, intentions or actual behaviors). Results of a recent study (Cohen, Weimann-Saks, & Mazor-Tregerman, 2017) are in line with these conclusions, finding no effects for four different manipulations of similarity on identification or on measures of persuasion. In other recent studies, however, similarity between the protagonist and the readership did influence identification and the persuasiveness of narratives (Chen, Bell, & Taylor, 2016; Hoeken, Kolthoff, & Sanders, 2016). Even in almost identical experiments mixed results were found: Chen and colleagues (2016) found significant, positive effects of a protagonist with the same age and of the same gender as their participants, while Chen and colleagues in 2017 found no significant differences in a highly comparable experiment. The story topic was different (caffeine overdose in 2016 versus type 2 diabetes in 2017), but both studies manipulated age and gender of the protagonist, and used student participants.

A possible explanation for these contradictory results is that the manipulations of similarity may not have been perceived as such by the participants. Following Hoffner and Buchanan (2005), who state that readers “tend to feel similar to characters who are like themselves in terms of demographic characteristics” (p. 328), many studies focus on the manipulation of such objective characteristics, like study program (Hoeken et al., 2016), gender and age (Chen et al., 2016; 2017), or living conditions (De Graaf, 2014). In general, these studies found significant but small effects of their similarity manipulation on perceived similarity. However, Cohen and colleagues (2017) did not find significant effects of gender and

nationality on perceived similarity in their first study, which they argue may have been because gender and nationality were not important to the general theme of the narrative used in their study. Likewise, it has been suggested that the effects of similarity are stronger when the similarity between a protagonist and receiver is on a story-relevant dimension rather than on a ‘simple’ demographic characteristic that is not important to the narrative (Green, 2006). Demographic similarities, such as age or gender, thus could increase identification but most probably so when they are relevant for the topic of the narrative (Hoeken et al., 2016, but see also Cohen et al., 2017).

5.1.2 Current study

The current study aims to shed more light on the relationship between manipulated similarity and perceived similarity, and their effects on identification, transportation and persuasion. By persuasion, we mean the typical operationalization of changes in attitudes or behavioral intentions (cf. Shen et al., 2015). Similarity was manipulated by using two objective demographic characteristics - gender and age - that are crucially relevant for the story topics, which are testicular cancer (the most frequent form of cancer in young men), and breast cancer (the most frequent form of cancer in older women). Similarity in those demographics increases the perceived risk for the depicted health threat. In line with Chen and colleagues (2016; 2017), we thus focused on gender and age, but while they used these characteristics only *conjointly* (i.e. young male participants read the story version about a young male or an old female protagonist, and young female participants about a young female or an old male protagonist), we also investigated the *separate* effects of age and gender. More knowledge on these separate and possibly additive effects could help health communicators to decide how to tailor features of the protagonist of their message to the characteristics of the audience they want to reach. Therefore, we used four different combinations of these two objective characteristics. Figure 5.1 shows the four groups of manipulated similarity that result from these four combinations of story versions and participant groups that were used: 1) no similarity in age or gender, 2) only similarity in age, 3) only similarity in gender, and 4) similarity in both age and gender. With this design, we tested the following hypotheses, which we derived from the literature discussed above:

- H1:* A protagonist with the same age as the reader induces higher perceptions of similarity (1A), higher levels of identification (1B), higher levels of transportation (1C), and higher scores on persuasive measures (1D) than a protagonist with a different age.
- H2:* A protagonist with the same gender as the reader induces higher perceptions of similarity (2A), higher levels of identification (2B), higher levels of transportation (2C), and higher scores on persuasive measures (2D) than a protagonist with a different gender.

Cohen and Tal-Or (2017) suggest that similarity manipulations may have additive persuasive effects. There is some evidence that the more characteristics are shared between the protagonist and the receiver of the narrative, the higher the narrative engagement (Kim, Shi, & Cappella, 2016), while there is no suggestion in the literature that leads us to expect interaction effects between age similarity and gender similarity. That is why we propose:

- H3:* Similarity in both age and gender leads to additive, and not interactive, effects on perceived similarity (3A), identification (3B), transportation (3C), and persuasive measures (3D).

Most previous studies into the effects of similarity were conducted with student participants (Chen et al., 2016; 2017; Cohen et al., 2017; Hoeken et al., 2016; De Graaf, 2014), but we were curious to see if results would be qualitatively different between adults and students. Additionally, earlier research found differential effects of narratives on males and females (Shen et al., 2015), making the question relevant whether results differ between men and women. Therefore, the role of age and gender of the participants is also examined in this study, but there was not enough evidence to formulate specific hypotheses concerning these participant characteristics.

Summarizing, to determine the effects of similarity on persuasive variables, we conducted an experiment in which participants read a narrative about a protagonist who was similar or dissimilar with the reader in age and/or gender. After reading, participants filled out a questionnaire with items measuring perceived similarity, identification, transportation, self-referencing, attitudes, and intentions, and also the emotions they felt while reading the narrative.

<i>Participants:</i>	Female students	Females over 40	Male students	Males over 40
<i>Protagonist:</i>				
Female student in breast cancer story				
Female adult in breast cancer story				
Male student in testicular cancer story				
Male adult in testicular cancer story				

Legend: no similarity gender similarity age similarity age and gender similarity

Figure 5.1 Overview of similarity conditions

5.1.3 Narrative processing

Besides examining the effects of similarity, we also investigated the process leading to the persuasiveness of narratives and the role of similarity therein. It has been suggested that transportation and identification impact attitudes and intentions through emotional responses that are evoked by the narrative (Green & Brock, 2000; Cohen, 2001). In an earlier study (Ooms, Jansen, Hommes, & Hoeks, 2017), we found that transportation and identification were indeed linked to emotions: transportation was positively associated with fear, sadness, surprise, and compassion, and identification was positively associated with compassion. In addition, we found that transportation was a significant predictor of behavioral intention. Of the emotions, only fear proved to significantly predict the intentions to follow the recommendation of performing a self-exam. See Figure 3.3 (Chapter 3 of this dissertation) for a graphic representation of these relationships as found in our prior study (Ooms et al., 2017).

A variable that was not included in that earlier study (Ooms et al., 2017), but that may also be relevant for explaining the processing of narratives is *self-referencing*. Self-referencing occurs when “information is processed by relating it to aspects of oneself” (Burnkrant & Unnava, 1995, p. 17). A number of studies have found empirical evidence for effects of self-referencing. Self-referencing can

mediate the effect of transportation on emotional responding (Dillard & Main, 2013; Dunlop, Wakefield, & Kashima, 2010), and also the effect of transportation on intentions (Dunlop et al., 2010). Additionally, self-referencing can mediate the relationship between identification and persuasiveness (Chen et al., 2017, but see also De Graaf, 2014).

In conclusion, it has been repeatedly shown that self-referencing contributes to narrative impact, but as this variable has so far not been included in theoretical models of narrative impact, its specific role in narrative processing remains rather unclear (De Graaf & Van Leeuwen, 2017). We decided to extend the model of narrative persuasion that resulted from previous work (Ooms et al., 2017) and include self-referencing. This extended model, shown in Figure 5.2, was tested in this study.

Figure 5.2 Hypothesized model of narrative persuasion

5.2 Method

5.2.1 Materials

As health topic for the narratives we selected two types of cancer: testicular cancer (most frequent in young men), and breast cancer (most frequent in older women). We specifically focused on fear-arousing narratives in which we present a protagonist who suffers from cancer in an advanced state partly because he or she did not carry out the health check that was promoted by the message (cf. Witte, 1992). In the last paragraph of each version of the narrative, the protagonist urges the reader to perform a monthly self-exam to detect cancer at an early stage. Performing testicular exams can be useful for men of all ages, as testicular cancer is easily diagnosable by self-exams and 96% curable if it is detected in an early stage (Ugboma & Aburoma, 2011). Most men currently do not perform self-exams (Ugboma & Aburoma, 2011) while self-exams are relatively easy, hence there is a

need for persuasion. Performing breast self-exams is also the first step to cancer prevention, and is also an easy and no-cost tool that can be performed by women of all ages (Booras & Gupta, 2019).

For the testicular cancer narrative, the protagonist was either a 22-year-old male student or a 50-year-old working father. For the breast cancer narrative, the protagonist was either a 22-year-old female student or a 50-year-old working mother. To reinforce the similarity manipulation, information on the lifestyle and living conditions of the protagonist was added, as can be seen in Table 5.1, showing the first paragraph of the narrative. All text versions were approximately 500 words long, in view of Cohen et al.’s warning (2017) that in longer narratives the possibly rather subtle effects of similarity may be ‘eroded’ by effects of transportation. The narrative were presented as text only.

An English translation of the narrative about testicular cancer with the young male protagonist can be found in Appendix A of Chapter 3. The original Dutch materials and translated versions are available on request from the first author.

Table 5.1 Sample paragraphs of the four versions

Female student protagonist	Female adult protagonist
<i>Breast cancer</i>	
My name is <u>Anna</u> and I am <u>22</u> years old. At this point in my life, I thought I had everything under control. I had a great <u>boyfriend</u> , a <u>small but cozy room in the lively center of Groningen</u> , <u>studied law at the university</u> , and many loyal friends. What I did not have under control was developing cancer. But not just any cancer, breast cancer to be specific. I knew that it is the most frequent form of cancer in older women, but I had <u>no clue that young women can also get it</u> , especially because I have no family history of breast cancer.	My name is <u>Anna</u> and I am <u>50</u> years old. At this point in my life, I thought I had everything under control. I had a great <u>family</u> , a <u>beautiful detached house in a peaceful village called Aduard</u> , a <u>nice job at the office</u> , and many loyal friends. What I did not have under control was developing cancer. But not just any cancer, breast cancer to be specific. I knew that this is the most frequent form of cancer in women of my age, but I had <u>never expected that I would get it</u> , especially because I have no family history of breast cancer.

Male student protagonist	Male adult protagonist
<hr/>	
<i>Testicular cancer</i>	
My name is <u>Jan</u> and I am <u>22</u> years old. At this point in my life, I thought I had everything under control. I had a great <u>girlfriend</u> , a <u>small but cozy room in the lively center of Groningen</u> , <u>studied law at the university</u> , and many loyal friends. What I did not have under control was developing cancer. But not just any cancer, testicular cancer to be specific. I <u>had no clue</u> that it is the most frequent form of cancer in guys ages 15-30 <u>and</u> I never expected that I would get it, especially because I have no family history of testicular cancer.	My name is <u>Jan</u> and I am <u>50</u> years old. At this point in my life, I thought I had everything under control. I had a great <u>family</u> , a <u>beautiful detached house in a peaceful village called Aduard</u> , <u>a nice job at the office</u> , and many loyal friends. What I did not have under control was developing cancer. But not just any cancer, testicular cancer to be specific. I <u>knew</u> that it is the most frequent form of cancer in guys ages 15-30, <u>but</u> I never expected that someone from my age would get it, especially because I have no family history of testicular cancer.

Note. The underlined text indicates differences between the story versions

5.2.2 Measures

Participants were asked to fill out the questionnaire immediately after reading one of the story versions. Unless noted otherwise, 7-point Likert scales were used, ranging from strongly disagree (1) to strongly agree (7). Please note that below, the approximate English translations are given of the original Dutch items in the order as presented in the questionnaire.

Intentions for two different behaviors were measured: *intention to perform self-exams* and *intention to donate to cancer charity*. Following Fishbein and Ajzen (2010), both variables were measured with two items (“In the next half year I plan to / will perform the self-exam monthly / donate to cancer charity”). Cronbach’s alpha’s were .91, respectively .95. Obviously, only men were asked to respond to the questions regarding self-exams of the testicles and only women to the questions regarding self-exams of the breasts.

Attitude towards performing self-exams and *attitude towards donating to cancer charity* were measured by asking how “useful”, “good”, “important”, and

“effective” participants found these behaviors (De Hoog, Stroebe, & De Wit, 2008). Cronbach’s alpha’s were .90, respectively .91. In line with the intention measure, only men responded to questions regarding self-exams of the testicles and only women to questions regarding self-exams of the breasts. Consequently, the attitude and intention regarding performing self-exams were not subject to gender similarity manipulations.

As *fear*, *sadness*, and *compassion* seem specifically relevant in the context of cancer messages (Ooms et al., 2017), these three emotions were measured by presenting the statement “While reading the story, I felt ...”, followed by response scales ranging from 1 (not ‘emotion word’) to 7 (‘emotion word’). The emotion words for fear and sadness were derived from Dillard et al. (1996): “afraid”, “scared”, “worried” for fear ($\alpha = .92$), and “sad”, “dreary”, “dismal” for sadness ($\alpha = .90$). To measure compassion, we used the emotion words “pity”, “compassion” and “sympathy” ($\alpha = .84$) (Oliver, Dillard, Bae, & Tamul, 2012).

Perceived similarity was measured with part of the ‘homophily scale’ of McCroskey et al. (1975). All four items of the *attitude* homophily scale (“X thinks like me” / “behaves like me” / “is similar to me” / “is like me”) were used. Three items (“X has social status like mine” / “has background similar to mine” / “has same lifestyle as me”) were added, based on the *background* homophily scale ($\alpha = .89$).

Identification was measured with three items of 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”. Furthermore, “I identified with X” (Dillard & Main, 2013) and “I imagined how it would be to be X” (De Graaf, Hoeken, Sanders, & Beentjes, 2012) were added. Cronbach’s alpha was .79.

Transportation was measured with the Transportation Scale – Short Form (Appel, Gnambs, Richter, & Green, 2015). This scale consists of five items: “I could picture myself in the scene of the events described in the narrative”, “I was mentally involved in the narrative while reading it”, “I wanted to learn how the narrative ended”, “The narrative affected me emotionally”, and “While reading the narrative I had a vivid image of X” ($\alpha = .80$).

Self-referencing was measured with four items: “The narrative reminded me to my own experiences”, “The narrative made me think about what could happen to me”, “During reading, I related the narrative to myself”, and “During reading, memories came up” (Dunlop et al., 2010). Cronbach’s alpha was .76.

Finally, participants were asked some personal characteristics, such as their age, gender, and family history with cancer.

5.2.3 Participants, design, and procedure

Two participant groups were targeted: students aged between 18 and 30, and adults older than 40 years. In total, 324 students from the University of Groningen participated. They filled out the questionnaire either in cubicles of a research lab or behind a PC during a course they took. Their mean age was 21.46 ($SD = 2.28$), ranging from 18 to 30 years, 42.6% male, 57.4% female. The older adults were recruited via the student participants and via an announcement on social media. In this way, 258 adults were reached. Their mean age was 56.83 ($SD = 7.40$), ranging from 40 to 78 years, 46.5% male, 53.5% female.

The experiment was conducted online using Qualtrics software. After having given written consent to participate, participants were randomly assigned to one of the four story versions (see Figure 5.1).

5.2.4 Ethics approval

The study was approved by the Research Ethics Committee (CETO) of the Faculty of Arts, University of Groningen.

5.3 Results

The following section is divided into two parts. First, the hypotheses concerning the effects of manipulated similarity are tested. Please note that, for brevity reasons, from here we will use the term *similarity* to indicate manipulated similarity. Otherwise, the term *perceived similarity* will be used. The second part focuses on testing the hypothesized model. A correlation matrix of all measured variables can be found in Appendix A.

5.3.1 Effects of similarity

To test H1 and H2, analyses of variance (ANOVAs) were performed with age similarity (similar versus dissimilar), gender similarity (similar versus dissimilar), gender (male versus female) and age group of the participant ('students' of 18 to 30 years versus 'adults' above 40 years) as between-participants factors. Although there were no specific hypotheses concerning these latter two characteristics of participants, the influence of participants' age and gender is examined by looking at

interaction effects between age or gender similarity on the one hand and participant characteristics on the other. To mitigate the effects of an inflated Type I-error due to multiple testing, we used an alpha level of .01. An overview of mean scores and standard deviations for the similarity conditions by student and adult participants can be found in Tables 5.2 and 5.3. As the effects were not influenced by gender of the participants (see below), Tables 5.2 and 5.3 do not show mean scores for men and women separately. Table 5.4 summarizes the significant main effects and interaction effects we found. From this table, it can be deduced if similarity in age and similarity in gender have additive effects (H3), namely when effects for both age and gender similarity are significant and in the same direction. The combinations for which there were no significant effects for any of the variables were excluded from the table. For brevity reasons, *Age Similarity* is abbreviated to ‘AS’, *Gender Similarity* to ‘GS’, *Participants’ Age Group* to ‘A’, and *Participants’ Gender* to ‘G’. This section concludes with exploratory findings regarding the effects of similarity on self-referencing and emotions.

Table 5.2 Means and standard deviations for Age Similarity, measured on 7-point scale

	Age Similarity			
	Students (n=324)		Adults (n=258)	
	Similar age group (n=166)	Dissimilar age group (n=158)	Similar age group (n=125)	Dissimilar age group (n=133)
Perceived similarity	4.16 (1.18)	3.05 (1.10)	2.98 (1.24)	3.02 (1.23)
Identification	4.91 (1.02)	4.48 (0.98)	4.04 (1.12)	4.55 (1.16)
Transportation	4.93 (0.98)	4.61 (1.16)	4.18 (1.16)	4.68 (1.09)
Attitude towards donation	5.81 (0.89)	5.63 (1.08)	5.58 (1.34)	5.72 (1.32)
Intention to donate	3.13 (1.32)	2.66 (1.43)	4.07 (2.05)	4.35 (1.92)
Attitude towards self-exams	6.48 (0.63)	6.44 (0.67)	6.27 (1.24)	6.54 (0.85)
Intention to self-exams	4.95 (1.28)	4.49 (1.59)	4.64 (1.83)	4.49 (1.90)
Self-referencing	3.93 (1.39)	3.63 (1.43)	3.57 (1.55)	3.77 (1.50)
Fear	3.98 (1.44)	3.69 (1.44)	3.07 (1.51)	3.24 (1.51)
Sadness	4.51 (1.48)	4.46 (1.37)	3.39 (1.66)	3.89 (1.64)
Compassion	5.79 (1.05)	5.61 (1.05)	4.80 (1.35)	5.50 (1.26)

Table 5.3 Means and standard deviations for Gender Similarity, measured on 7-point scale

	Gender Similarity			
	Students (n=324)		Adults (n=258)	
	Similar gender (n=165)	Dissimilar gender (n=159)	Similar gender (n=135)	Dissimilar gender (n=123)
Perceived similarity	3.81 (1.27)	3.41 (1.22)	2.92 (1.14)	3.10 (1.32)
Identification	4.86 (0.98)	4.53 (1.04)	4.37 (1.11)	4.23 (1.22)
Transportation	4.95 (1.06)	4.58 (1.08)	4.59 (1.10)	4.27 (1.18)
Attitude towards donation	5.55 (1.03)	5.91 (0.92)	5.63 (1.29)	5.67 (1.38)
Intention to donate	2.68 (1.25)	3.13 (1.50)	4.39 (2.01)	4.03 (1.95)
Self-referencing	4.00 (1.32)	3.55 (1.48)	3.70 (1.52)	3.64 (1.54)
Fear	4.01 (1.41)	3.66 (1.47)	3.05 (1.47)	3.27 (1.55)
Sadness	4.36 (1.46)	4.62 (1.34)	3.47 (1.76)	3.85 (1.54)
Compassion	5.78 (1.09)	5.62 (1.01)	5.17 (1.38)	5.15 (1.31)

Note. The attitude and intention regarding performing self-exams were excluded for the gender similarity analysis.

Table 5.4 Summary of main and interaction effects

	AS	GS	A	G	AS * GS	A * G	AS * A	GS * A	GS * G	AS * A * G	GS * A * G
Perceived similarity	X		X				X	X			
Identification			X				X				
Transportation		X	X				X		X		
Attitude towards donation		X		X							
Intention to donate			X	X			X				
Attitude towards self-exams				X		X					
Intention to self-exams						X				X	
Self-referencing									X		
Fear			X								
Sadness		X	X	X							
Compassion	X		X				X		X		

Note. X indicates a significant effect at .01 level. AS = age similarity, GS = gender similarity, A = participants' age group, G = participants' gender.

Age Similarity

Our first hypothesis predicted that a protagonist with the same age as the reader induces higher perceptions of similarity (1A), higher levels of identification (1B) and transportation (1C), and higher scores on persuasive measures (1D) than a protagonist with a different age.

There was a significant interaction between Age Similarity and participants' age group on perceived similarity ($F(1,566) = 31.79, p < .001$, partial $\eta^2 = .053$): Student participants perceived themselves to be more similar to a same-age protagonist than to a different-age protagonist. Adult participants showed no differences in perceived similarity. We also found an interaction between Age Similarity with participants' age group on identification ($F(1,566) = 25.55, p < .001$, partial $\eta^2 = .043$) and transportation ($F(1,566) = 18.39, p < .001$, partial $\eta^2 = .031$), where students had higher scores when protagonists were of the same age, and adults had higher scores when protagonists had a different age (i.e., were younger). Thus, part A, B and C of Hypothesis 1 only received support in case of students.

Part D of Hypothesis 1, concerning the persuasive measures, also only received partial support. There were no main effects of Age Similarity on attitude towards performing self-exams ($p = .20$) nor on attitude towards donating ($p = .78$), nor were there any interactions involving Age Similarity ($p > .37$). For donation intention, Age Similarity showed an interaction with participant's age group ($F(1, 566) = 7.49, p = .006$, partial $\eta^2 = .013$): for students, a same-age protagonist resulted in stronger intentions to donate than a different-age protagonist. For adults, no differences were found. In addition, there was a three-way interaction effect of Age Similarity, participants' age group and participants' gender on intention to perform self-exams ($F(1,291) = 8.14, p = .005$, partial $\eta^2 = .027$). Figure 5.3 visualizes this three-way interaction by showing the mean scores per participant group. Female students ($M = 4.96, SD = 1.29$) and male adults ($M = 4.74, SD = 1.83$) were more inclined to perform self-exams after reading about a same-age protagonist than about a different-age protagonist ($M = 4.07, SD = 1.64$, respectively $M = 3.91, SD = 2.04$). For female adults and male students, difference in age of the protagonist did not lead to significant differences in intention.

Figure 5.3 Bar graph of mean scores for intention to perform self-exams by Age Similarity, per participant group. * $p < .01$

Gender Similarity

Our second hypothesis predicted that a protagonist with the same gender as the reader induces higher perceptions of similarity (2A), higher levels of identification (2B) and transportation (2C), and higher scores on persuasive measures (2D) than a protagonist with a different gender.

Gender Similarity only showed an interaction with participants' age group on perceived similarity ($F(1,566) = 6.32$, $p = .012$, partial $\eta^2 = .011$): Student participants perceived themselves to be more similar to a same-gender protagonist than to a different-gender protagonist, while adult participants again showed no differences in perceived similarity, partially supporting 2A. For identification and transportation, no main or interaction effects of Gender Similarity were found, providing no support for hypothesis 2B nor 2C.

Part D of hypothesis 2 was also not supported: There were no main effects of Gender Similarity on attitude towards donating or donation intention, nor were there interactions with participants' age group or gender.

Additive effects

Our third hypothesis predicted that similarity in both age and gender lead to additive scores on perceived similarity (3A), identification (3B), transportation (3C), and persuasive measures (3D), as compared to similarity in only age or only gender. Just as in the previous analyses, we checked for the influence of the participant characteristics. There was one *additive* effect of Age Similarity and Gender Similarity, namely where perceived similarity was concerned: here, we found an interaction of Age Similarity with *Participants’ Age Group*, and an interaction of Gender Similarity with *Participants’ Age Group*, showing that, for student participants, a same-age and a same-gender protagonist led to more perceived similarity than a protagonist of different age or gender. Adult participants did show differences in perceived similarity.

Exploratory findings: Effects of similarity on self-referencing and emotions

Although there were no hypotheses concerning the effects of similarity on self-referencing and emotions, we did explore if self-referencing and the emotions of fear, sadness and compassion were influenced by the similarity manipulations. For self-referencing, there only was a significant interaction between Gender Similarity and participants’ gender ($F(1,566) = 7.74, p = .006$, partial $\eta^2 = .013$). Only for women, a female protagonist led to more self-referencing than a male protagonist; for men, no significant differences were found. For fear, there were no significant main or interaction effects ($p > .025$).

For sadness, there was an interaction between Gender Similarity and participants’ gender ($F(1,566) = 15.95, p < .001$, partial $\eta^2 = .027$). Men felt more sadness after reading about a different-gender protagonist than after reading about a same-gender protagonist. For women, no differences in sadness were found. For compassion, there was an interaction between Age Similarity and participants’ age ($F(1,566) = 18.06, p < .001$, partial $\eta^2 = .031$), such that adults felt more compassion after reading about a different-age protagonist than a same-age protagonist. For students, no differences were found. Furthermore, there was a significant interaction between Gender Similarity and participants’ gender ($F(1,566) = 6.84, p = .009$, partial $\eta^2 = .012$): Women reported more compassion after reading about a female protagonist than after reading about a male protagonist, while men reported equal levels of compassion.

5.3.2 Role of perceived similarity in narrative processing: A SEM analysis

To examine the mechanisms underlying the processing of narratives, we used structural equation modeling with AMOS 25.0. We tested whether the model we hypothesized (see Figure 5.2) had adequate model fit according to the criteria of Kline (2015): (a) the model chi square divided by its degrees of freedom (χ^2/df) should be less than 3.0, (b) the comparative fit index (*CFI*) should exceed .90, and (c) the root mean square error of approximation (*RMSEA*) should be lower than .08. The model was first fitted to the data of the total sample, after which we checked for possible differences between the student sample and the adult sample by performing a multigroup analysis (Ooms et al., 2017), as student and adult participants differed on nearly all variables that were measured (see Table 5.4). Please note that in the graphic representation of our models, covariance arrows are used to indicate the reciprocal relationships between transportation and identification, and between the emotions. In the path analyses, however, unidirectional relations were tested as required by AMOS.

We started with the data of the total sample, with the attitude and intention concerning donation to cancer charity. The initial model had a *CFI* of .977 and an *RMSEA* of .073, but χ^2/df was with 4.12 not satisfactory. Following Byrne's suggestion (2001) to also evaluate the individual parameter estimates of paths, we deleted all non-significant paths (self-referencing to compassion and to sadness, transportation to fear, identification to sadness, fear to attitude towards donation, sadness to attitude towards donation, compassion to intention to donate, fear to intention to donate). This resulted in a good model fit: $\chi^2/df = 2.41$, *CFI* = .985, *RMSEA* = .049. Figure 5.4 presents the final model concerning donation. The multigroup analysis did not provide evidence for differences in causal patterns for the two groups (i.e. student sample and adult sample), they only showed differences in *strength* for a number of relations. For students, the relationship between sadness and compassion ($\beta = .48$, $p < .001$) was stronger than for adults ($\beta = .23$, $p < .001$; $z = 2.88$, $p < .01$), while the relationship between fear and sadness was stronger for adults ($\beta = .68$, $p < .001$) in comparison to students ($\beta = .40$, $p < .001$; $z = 4.31$, $p < .01$). Furthermore, the estimate of the path from attitude to intention was significantly higher for adults ($\beta = .64$, $p < .001$) than for students ($\beta = .35$, $p < .001$; $z = 2.56$, $p < .05$). No other significant differences were found, indicating that the paths in the model were consistent between the two samples.

Figure 5.4 Final model concerning donation with standardized estimates (N=582)

Figure 5.5 Final model concerning performing self-exams with standardized estimates (n=299)

Next, we evaluated the fit of that same model in Figure 5.4 with the data for attitude and intention towards performing self-exams as outcome variables ($n = 299$, as men only answered questions on testicular self-exams, and only women the questions on breast self-exams). Model fit turned out to be good: $\chi^2/df = 1.67$, $CFI = .985$, $RMSEA = .047$. Two paths (identification to self-referencing, and sadness to intention) were non-significant and were hence deleted. Figure 5.5 presents the final model concerning performing self-exams ($\chi^2/df = 1.71$, $CFI = .982$, $RMSEA = .049$). The multigroup analysis again showed that the relationship between sadness and compassion was stronger for students ($\beta = .55$, $p < .001$) than for adults ($\beta = .24$, $p < .01$; $z = 2.63$, $p < .01$), while the relationship between fear and sadness was stronger for adults ($\beta = .72$, $p < .001$) in comparison to students ($\beta = .45$, $p < .001$; $z = 2.89$, $p < .01$). In addition, we found that the path from transportation to sadness was significant for adults ($\beta = .31$, $p < .01$), but not for students ($\beta = .01$, $p = .91$; $z = 2.18$, $p < .05$). Finally, the path from attitude to intention was significant for students ($\beta = .75$, $p < .001$), while it was only marginally significant for adults ($\beta = .28$, $p = .06$;

$z = -2.14, p < .05$). No other significant differences were found, indicating that most paths in the model were consistent between the two samples.

Both models show that, in conformity with the hypothesized model in Figure 5.2, perceived similarity was positively associated with transportation and identification. The three emotions we measured proved to be predicted by transportation or identification, and fear also by self-referencing. Of these emotions, only compassion predicted attitudes; sadness influenced only the intention to donate. Transportation turned out to be a significant predictor of attitudes and intentions towards both donation and performing self-exams.

5.4 Discussion

In this study, we investigated whether manipulated similarity with a protagonist affected the persuasive outcomes of narratives, through perceived similarity, transportation, identification, self-referencing, and the emotions of fear, compassion, and sadness. We conducted an experiment in which we varied the age and gender of the story protagonist to make him/her less or more similar to the participants, who were females and males, either of student age or above 40 years old (further abbreviated to ‘students’ versus ‘adults’). Similarity in age and similarity in gender were assumed to be relevant to the chosen health theme of cancer, since the susceptibility for breast cancer and testicular cancer is age and gender sensitive: breast cancer most often affects older women, and testicular cancer is most often found in young men. We hypothesized that a protagonist with the same age and gender as the reader would induce higher perceptions of similarity, higher levels of identification and transportation, and higher scores on persuasive measures than a protagonist with a different age and gender.

5.4.1 Age Similarity

In line with our first hypothesis, we found that age similarity produced differences in perceived similarity, but only for student participants. As expected, student participants felt more similar to a student protagonist instead of an adult protagonist. For adult participants, there were no significant differences in perceived similarity.

With regard to the narrative variables we measured, age similarity again appeared to be especially relevant for students, who felt more transported and could identify more with a student than with an adult protagonist. These findings

are not surprising, because peers play an important role in the lives of young people. More surprising perhaps was the finding that also adults reported more identification, transportation, and compassion after reading about a student protagonist than after reading about a protagonist of their own age. Possibly, some adults were more touched by the fate of a young person than that of a protagonist of their own age, because some of them might have children of the same age as the young protagonists (i.e., around 20 years of age) or because of the general conviction that especially young people should not get serious diseases such as cancer. Another possible explication may lie in ‘age denial’: people aged over 40 often perceive themselves as younger than they truly are (Rubin & Berntsen, 2016), causing some adults to connect with a younger protagonist.

Similarity in age led to persuasive effects for specific groups of participants. Student participants were more inclined to donate after they read about a protagonist of similar age, while adults were willing to donate regardless of the age of the protagonist. Regarding intention to perform self-exams, age similarity positively affected only female students and male adults. Perhaps reading about someone of their own age made participants in these two groups suddenly realize that they were also at risk for getting cancer, precisely because it is normally older females who get breast cancer, and not young female students, and it is generally younger males who are prone to testicular cancer, and not older men.

5.4.2 Gender Similarity and Additive effects

Hardly any effects were found for gender similarity, providing very little support for hypothesis 2. Gender similarity had no effect on persuasive measures. Gender similarity only produced differences in perceived similarity for student participants. Consistent with age similarity, student participants felt more similar to a protagonist of similar gender, while adult participants did not show differences.

Besides separate effects of age and gender similarity, we expected that the condition with similarity in both age and gender would lead to additive scores on persuasive measures (H3), especially since age as well as gender were relevant characteristics for the narrative at hand. However, having both age and gender in common with the protagonist did not lead to higher scores on attitudes or intentions than sharing only one of these characteristics with the protagonist. Only perceived similarity was affected by both age and gender similarity.

5.4.3 Processing of narratives: Evaluating the SEM model

In the present study, we also examined the fit of a model we developed for the processing of narratives, largely based on the model in an earlier study (Ooms et al., 2017). We extended that model to include two new concepts: perceived similarity and self-referencing. Path analyses largely supported the proposed model across the student sample as well as the adult sample: Perceived similarity positively predicted both transportation and identification, which in turn predicted fear, sadness and compassion. Transportation also predicted attitudes and intentions directly, suggesting that transportation, and not identification, is central to narrative persuasion (for similar findings, see Murphy et al., 2011; Ooms et al., 2017). Transportation, and in one of the models also identification, also positively predicted self-referencing. Self-referencing, however, did not predict persuasive outcomes, neither directly nor via emotions. Self-referencing was only related to the emotion of fear, and in our current model, fear was not a direct predictor of behavioral intentions. This latter finding contrasts with our earlier model (Ooms et al., 2017; Chapter 3), in which fear did increase intention to perform self-exams. Interestingly, in the present study, compassion seems to have taken over the persuasive power of fear, as this time, compassion did influence behavioral intentions (indirectly via attitudes). With regard to donation behavior, this may be explained by the so-called ‘action tendency’ of compassion (Lazarus, 1991). Compassion typically leads to the desire to help others, for example, by donating money to charity. It is much less clear, however, why compassion was also beneficial for a self-focused behavior such as performing self-exams. More research is needed in this area. Future research might also further examine the role of sadness. We found that the path from transportation to sadness was weak and did not even exist for students in one of the models. Additionally, we found that the emotion of sadness directly influenced intention, but only for the intention to donate and with a small, negative coefficient. The lack of persuasive effects for sadness could be explained by the action tendency of sadness, which is withdrawal (Dillard et al., 1996), suggesting that sad people do not take action.

5.4.4 Limitations

Some limitations must be acknowledged, especially with regard to the kind of narrative that was used in this study. Our fear-arousing narrative resembles narratives used in public health campaigns, but these narratives might be different

from narratives that people naturally share, nowadays increasingly via social media. Despite the possible differences, research has shown that both stories that come from traditional media, such as health campaigns, as well as stories from social media often focus on the harms of diseases, just like the narratives in our study did (Margolis, Brewer, Shah, Calo, & Gilkey, 2019). To increase the external validity of our results, more research is needed. Another possible limitation is that though there were four story versions, there was only one particular storyline. This obviously can limit the generalizability of our research findings, and it can be especially problematic for anecdotal experiences such as narratives, which then portray only one experience on which readers can base their health decisions (Holmberg, 2018). To properly guide individuals through their health decision making process, Holmberg (2018) advises to present storylines that take both the subjective experiences of patients and medical knowledge into account. Our narrative indeed contained doctor’s advice, which may be regarded as medical knowledge. As a final limitation of this study, it must be noted that the effect sizes, reported as partial eta squared, did not exceed the benchmark of .0588 that Cohen (1988) proposes for medium effects. This implies that the reported differences only represent small effects. Even small effects of mass media, however, suggest that the health behavior of large numbers of people could be affected (Snyder et al., 2004).

5.4.5 Implications

Our outcomes provide several important insights with regard to the effects of similarity manipulations and the processing of narratives. First, this study shows that, for student participants, the age characteristic was more powerful than gender. This advantage of age similarity over gender similarity could explain the mixed results of Chen and colleagues (2016; 2017), who combined age and gender in their similarity manipulation. They only found positive effects for a narrative on caffeine overdose which “poses proximal effects for young audiences” (Chen et al., 2017, p. 911), making age similarity more relevant than gender similarity. In the other study, the topic was type 2 diabetes, which can afflict people of any age, but especially older people. For future studies, it is recommended to disentangle age and gender in order to make clear which characteristic caused which effects. Second, we discovered that student and adult participants differed on nearly all variables that were measured. With only students as participants, as in many earlier studies (Chen et al., 2016; 2017; Cohen et al., 2017; Hoeken et al., 2016; De Graaf,

2014), we would likely have assumed, incorrectly, that age similarity is of importance for any audience. An important strength of the present study is thus that also adults participated. For these adults, having the same age as the protagonist they read about did not matter too much. Sometimes, adults even had a more positive reaction to a young protagonist than to a same-aged one. Thus, our findings suggest that researchers should be very careful with generalizing from findings gathered from student samples to the general population. These findings also have practical implications. As has become apparent from our results, health campaign designers should definitely take the age of the audience into account when designing health messages. However, in cases where tailoring is impractical or impossible (Gavaruzzi et al., 2018), campaigners may want to choose for young protagonists, because having a young main character was most persuasive for students and did not negatively affect the persuasive results for older people.

In spite of the different effects of the similarity manipulations on student and adult participants, we found that students and adults process narratives in a similar way. The findings of the path analyses suggest that perceived similarity should be added to models of narrative persuasion. For the concept of self-referencing, no such support was found. In line with earlier research (De Graaf & Van Leeuwen, 2017), we found that perceived similarity can positively predict narrative persuasion, as perceived similarity was related to both transportation and identification, which, in turn, were related to attitudes and health behavioral intentions, directly - in the case of transportation - or indirectly, via the emotion of compassion.

5.5 Conclusion

In conclusion, even though earlier research (De Graaf et al., 2016; Chen et al., 2017; Cohen et al., 2017) casted doubt on the effectiveness of similarity manipulations, our study shows that both manipulated and perceived similarity are important factors in narrative persuasion. We found that manipulated similarity can expand the persuasive power of a narrative, be it for specific participant groups and similarity manipulations: Particularly age similarity was found to be important for young people. Further research is needed to generalize this finding beyond the specific context of this study. For all participants, perceived similarity influenced the mechanisms underlying narrative persuasion. Thus, similarity should be kept on the research agenda of health communication.

Appendix A: Correlation matrix ($N = 582$)

	1	2	3	4	5	6	7	8	9	10	11
1. Perceived similarity	-	.57**	.39**	.28**	.33**	.23**	.27**	.13**	-.06	.09	.07
2. Identification		-	.72**	.42**	.39**	.39**	.52**	.21**	.09*	.20**	.23**
3. Transportation			-	.47**	.37**	.42**	.52**	.26**	.16**	.23**	.27**
4. Self-referencing				-	.38**	.31**	.24**	.13**	.11*	.09	.24**
5. Fear					-	.63**	.29**	.11**	.01	.09	.16**
6. Sadness						-	.48**	.13**	-.04	.16**	.23**
7. Compassion							-	.30**	.12**	.29**	.30**
8. Attitude donation								-	.35**	.30**	.05
9. Intention donation									-	-.00	.18**
10. Attitude self-exams [§]										-	.27**
11. Intention self-exams [§]											-

Note. * $p < .05$, ** $p < .01$; [§] ($n = 299$)

CHAPTER 6

The story against smoking:

An exploratory study into the processing and perceived effectiveness of narrative visual smoking warnings

This chapter is based on:

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Abstract

Objectives: This study compared the effects of two types of health warnings on cigarette packages: ‘narrative visual warnings’, showing an image portraying people plus a corresponding slogan that could evoke a story-like interpretation, and ‘non-narrative visual warnings’ with non-narrative content (i.e. body parts). Moreover, the mechanisms underlying the effects of these health warnings were explored.

Design: A within-participants experiment was conducted comparing narrative and non-narrative visual warnings. Path analyses were performed to investigate the relation between the narrative concepts transportation and identification, the emotions evoked by the health warning, and the perceived effectiveness of the message.

Method: Participants ($N = 200$) were presented with one narrative warning and one non-narrative warning. After each warning, they answered questions on narrative perception, transportation, identification, emotions, and perceived effectiveness.

Results: The narrative warnings were seen as more story-like than the non-narrative warnings. There was a statistical trend for narrative warnings to be perceived as more effective than the non-narratives. The narrative warnings caused more transportation, fear, sadness, compassion and anger; the non-narrative warnings evoked more disgust and surprise.

For the narrative warnings, both narrative concepts of transportation and identification were directly related to perceived effectiveness, and also indirectly via sadness. For the non-narrative warnings, transportation was related to perceived effectiveness, both directly as well as indirectly via disgust.

Conclusions: Seeing a story in a still picture with a slogan helps to increase the effectiveness of the anti-smoking message. Both narrative and non-narrative visual warnings may persuade receivers directly, but also through the evocation of emotions, although the specific emotions responsible for the persuasive effects may differ.

6.1 Introduction

In the last few decades, stories or 'narratives' have become a popular research topic in the field of persuasive communication. Narratives can have a positive impact on people's beliefs, attitudes, intentions, and behavior (Braddock & Dillard, 2016; De Graaf, Sanders, & Hoeken, 2016), which is why there is a strong interest in researching narratives in health contexts. Narratives can be distinguished from other means of persuasion by "the suggestion of a character or characters and the representation of an event or events" (Bilandzic & Busselle, 2013, p. 201). A great variety of narratives have been studied, ranging from short public service announcements to elaborate written stories, movies and television series. Most studies so far have looked at persuasive stories in a written format (cf. Shen, Sheer, & Li, 2015), possibly because written texts are easy to manipulate and therefore rather practical to use in experiments.

However, in real life, images seem to be used in health communication at least as often as texts. Health warnings on cigarette packages used to consist of only a confronting message, but an increasing number of countries have now added images. There is ample evidence that pictorial health warnings are more effective than text-only warnings (Hammond, 2011; Noar et al., 2015), but it remains unclear which type pictorial warning is most effective (Sutton, Yang, & Cappella, 2018; Gendall, Hoek, & Gendall, 2018). Some cigarette packages display yellow teeth or black lungs, while other packages show people in a specific context, for instance a mourning couple next to a small coffin (see Figure 6.1, left). This image may prime receivers to think about what might have preceded the sad scenario that is presented here. In combination with the text "Smoking can kill your unborn child", receivers may likely figure out that these two people expected a baby, and that this baby died because the mother or father was a smoker. A single picture can suggest a whole story, because, as Abbott (2002) states: "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" (p. 11). Bilandzic and Busselle (2013, p. 201) also argue that a single still picture can be perceived as a narrative. As far as we know, however, this claim has not been empirically tested yet. Earlier research (e.g. Brennan, Maloney, Ophir, & Cappella, 2017; Sutton et al., 2018) has identified warnings as narrative or testimonial when they contain photographs of real people whose health has been affected, but it remains unclear if participants in their studies also perceived the warnings as narrative. That is why in this study, we included a

manipulation check in which we tested if our ‘narrative’ visual warnings, consisting of a short text line and an image portraying two or more people in a specific context, were indeed perceived as more narrative than our ‘non-narrative’ visual warnings that displayed content that is unlikely to be seen as narrative (e.g. body parts).

In addition to establishing whether narrative images are indeed perceived as narratives, this study also tested whether narrative and non-narrative health warnings on cigarette packages differ in persuasive effects. Furthermore, we wanted to find out to what extent any persuasive effect is then achieved via transportation, emotions, and in the case of narrative warnings also through identification. Below, we elaborate on the specific dependent measures we used and we discuss the concepts involved in narrative processing.

6.1.1 Perceived effectiveness

Recent research into the effects of narrative pictorial warnings compared to non-narrative pictorial warnings has elicited mixed results. Brennan et al. (2017) investigated the effects of testimonial warnings on emotional responses, a set of intention measures and self-reported behavior changes amongst smokers. As testimonial warnings, they used images of a real person, sometimes accompanied by personal details. As non-narratives, they used staged images of persons or body parts. No differences were found between the two conditions with regard to negative emotions, and intentions to quit smoking. The testimonial warnings did generate more quitting activity than the non-testimonials, but this difference was not statistically significant. Brennan, Maloney, Ophir, and Cappella (2018) examined whether the effectiveness of testimonial pictorial warnings, consisting of a statement and an image of a real person, could be increased by adding more information about that person. The results showed that additional information did not increase effectiveness of the testimonial warnings. Brennan et al. (2018) confirmed that testimonial warnings are more effective than text-only warnings; they did not test non-testimonial images. From a content analysis of the features within smoking warnings, Sutton et al. (2018) conclude that graphic depictions of diseases, testimonials, and photographs seem to be most effective, compared to messages without these features.

While the studies of Brennan et al. (2017; 2018) and Sutton et al. (2018) were conducted amongst people who smoked, the warnings labels presented on cigarette packages are also meant to discourage young people to take up smoking

(Directive 2014/40/EU). Ideally, researchers are interested in finding out whether smokers actually stopped smoking after seeing the smoking warnings, and whether nonsmokers do not start smoking. However, due to practical constraints, many researchers use indirect measures of persuasion, such as attitudes and behavioral intentions. However, quitting smoking and not taking up smoking are two very different behaviors, making attitudes and behavioral intentions hard to compare. By using the notion of ‘perceived effectiveness’ this problem is circumvented, as this dependent measure applies equally to smokers and nonsmokers. Although perceived effectiveness is still an indirect measure of behaviour, a meta-analysis of Dillard, Weber, and Vail (2007) indicated that there is a substantial association (a corrected-for-attenuation correlation of .41) between it and the actual effectiveness of persuasive messages in general. More recently, such support has also been established for anti-smoking messages in particular. Multiple studies (Bigsby, Cappella, & Seitz, 2013; Davis, Nonnemaker, Duke, & Farrelly, 2013; Brennan, Durkin, Wakefield, & Kashima, 2014) found that perceived effectiveness was associated with actual effectiveness, such that antismoking advertisements that were perceived to be effective were more likely to produce a change in smokers’ attitudes, intentions and behaviours related to the message content.

In this study, we use perceived effectiveness as the outcome measure. In accordance with the European Commission (n.d.) statement that tobacco control measures “aim to help smokers to quit or not to start in the first place”, we included both smokers and non-smokers as participants. Although evidence regarding the effectiveness of testimonial warnings is inconclusive, Brennan et al. (2017; 2018) do recommend testimonial warnings over non-testimonial ones. Therefore, we proposed the following hypothesis:

H1: Narrative visual warnings lead to a higher level of perceived effectiveness in comparison to non-narrative visual warnings.

In addition to studying the effectiveness of narrative pictorial warnings compared to non-narrative pictorial warnings, we also wanted to establish the mechanisms through which such warnings can be effective. In particular, narrative visual warnings may be processed through the same mechanisms that underlie the effectiveness of text-based narratives.

6.1.2 Transportation, identification, and emotions

Narrative persuasion is the result of audience involvement with the storyline and characters (Moyer-Gusé, 2008). Among the various ways in which audiences can connect with narratives, the most studied ones that have also been found to be highly influential, are transportation (Green & Brock, 2000) and identification (Cohen, 2001; De Graaf, Hoeken, Sanders, & Beentjes, 2012). Green and Brock (2000) define transportation as “a convergent process, whereby all mental systems and capacities become focused on events occurring in the narrative” (p. 701). Identification on the other hand is “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 terms refer to the degree of involvement in the story, but transportation relates to the story as a whole, while identification relates to the story’s characters (Tal-Or & Cohen, 2010).

It has been suggested that transportation and identification affect attitudes and intentions by evoking (strong) emotional responses (Cohen, 2001; Green & Brock, 2000). Empirical evidence (e.g. Banerjee & Greene, 2012; Ooms, Jansen, Hommes, & Hoeks, 2017) shows that emotions mediate the relationships between transportation and identification on the one hand, and attitudes and intentions on the other hand. In a study into the effects of vividness manipulations in warnings labels, Ophir, Brennan, Maloney, and Cappella (2017) also found that testimonial warnings can lead to increased emotional engagement, which in turn was associated with intentions to quit smoking. Also in a smoking context, Sutton et al. (2018) found that negative emotions mediated the relationship between warnings labels and perceived effectiveness.

It is still unclear, however, which specific emotions play a role in persuasion (Popova, So, Sangalang, Neilands, & Ling, 2017). As both the narrative and non-narrative images on cigarette packages show the negative consequences of the undesired behaviour of smoking, the most likely emotion to be evoked is fear (cf. Witte, 1992). However, smoking warnings can also evoke other emotional responses such as anger, disgust or sadness (Popova et al., 2017; Brennan et al., 2018). Based on the above, we propose the following hypotheses:

H2: Narrative visual warnings lead to a higher level of transportation in comparison to non-narrative visual warnings.

H3: Emotions mediate the relationship between transportation and identification on the one hand, and perceived effectiveness on the other hand.

As it is unclear via which specific emotions persuasive effects may be achieved, we also asked:

RQ1: Which emotions are related to the perceived effectiveness of narrative and non-narrative visual warnings?

To test these hypotheses and answer the research question, we conducted a within-participants experiment in which participants were presented with both a narrative and a non-narrative health warning. After each health warning, the participants responded to a number of questions regarding narrative perception, transportation, identification, perceived effectiveness and the emotions they felt while looking at the images.

6.2 Method

6.2.1 Materials

Materials were selected from the warnings for cigarette packages that are prescribed by the directive 2014/40/EU of the European Parliament. We randomly chose 'set 1' as a basis for our stimuli. Two narrative health warnings portraying people (see Figure 6.1), and two non-narrative health warnings (see Figure 6.2) were used. One narrative warning showed a picture of two mourning people standing above a small coffin, accompanied by the text "Smoking can kill your unborn child". As argued above, this image, in combination with the text, implies that these two people, presumably a couple, were expecting a baby, but it died before it was born because the mother (and/or the father) smoked. The other narrative warning displayed a woman and a child sitting next to a man lying in a hospital bed, accompanied by the text "Quit smoking - stay alive for those close to you". This combination of picture and text suggests that the man, presumably the husband and father, got sick because he smoked. As the original European picture only shows the family from some distance, we replaced it by a picture in one of Brazil's health warnings. In this new picture (see Figure 6.1, right), the faces of the mother and child are more clearly visible, and it is more clearly shown that the man is in hospital,

as he is connected to a breathing tube. Based on Bilandzic and Busselle's (2013) definition of a narrative, both warnings could be considered as narratives: each shows more than one person and each represents an event.

The non-narrative warnings did not show persons, but only diseased body parts. The first warning showed decaying teeth accompanied by the text "Smoking damages your teeth and gums", while the second non-narrative warning displayed black lungs accompanied by the text "Smoking causes 9 out of 10 lung cancers". All warnings were presented on screen in the original size and format of a cigarette package (color photograph with textual warning).

Figure 6.1 Narrative health warnings

Figure 6.2 Non-narrative health warnings

6.2.2 Participants, design, and procedure

Participants were 200 students from the University of Groningen in The Netherlands. Their mean age was 21.41 ($SD = 2.33$); 46% were male, 54% female; 7.0% identified as a smoker, 18.5% indicated to smoke occasionally and 74.5% did not smoke. After signing a written consent form, each participant completed the study individually in a university computer lab. A within-subject design was used as in such an experimental design random differences that exist between the experimental conditions are kept to a minimum (Field, 2013, p. 17). Each participant was exposed to one of the two narrative warnings and one of the two non-narrative warnings. To prevent order effects, we counterbalanced the order of presentation of the two types of warnings, which resulted in eight groups (see Table 6.1). Online survey tool *Qualtrics* randomly assigned the participants to one of the groups. There were 25 or 26 participants in each group. Men versus women, and smokers versus nonsmokers were equally distributed over the eight groups ($\chi^2(7) = 6.06$, $p = .53$, $\chi^2(7) = 8.91$, $p = .26$, respectively).

Table 6.1 Experimental groups

1	Nar1	Non-nar1
2	Nar2	Non-nar1
3	Nar1	Non-nar2
4	Nar2	Non-nar2
5	Non-nar1	Nar1
6	Non-nar2	Nar1
7	Non-nar1	Nar2
8	Non-nar2	Nar2

Note. Nar1 = "dead baby"; Nar2 = "sick father"; Non-nar1 = "teeth"; Non-nar2 = "lungs"

6.2.3 Measures

As the participants answered each question twice (after the narrative warning and after the non-narrative warning, in random order), Cronbach's alphas are reported for each of these measurements. Seven-point Likert scales were used unless noted otherwise.

Narrative perception was measured with two items: "The image on the anti-smoking warning shows a story" and "I recognized a story in the anti-smoking warning" (r measurement I = .84; r measurement II = .92). These questions were

answered on 7-point Likert scale, ranging from "completely disagree" to "completely agree". Furthermore, two open questions checked if participants had interpreted the image correctly: "What did you see on the image?" and "According to you, what preceded this situation?" Based on the responses to these questions, data from two participants had to be excluded because they could not tell what happened.

Perceived effectiveness was measured with the statement "In my opinion, this warning is", followed by three semantic differentials taken from Chen et al. (2017): "persuasive", "effective", and "convincing" (α measurement I = .80; α measurement II = .83).

Several specific emotions were measured: fear, sadness, anger, surprise, compassion, and disgust. These emotions were measured by presenting the statement "While reading the story, I felt ...", followed by three items per emotion. The response scale ranged from 1 (not "emotion word") to 7 ("emotion word"). Emotion words were derived from Dillard, Plotnick, Godbold, Freimuth, and Edgar (1996): "afraid", "scared", "worried" for fear (α measurement I = .94; α measurement II = .96), "sad", "dreary", "dismal" for sadness (α measurement I = .97; α measurement II = .96), "irritated", "angry", "annoyed" for anger (α measurement I = .92; α measurement II = .92), and "surprised", "startled", "astonished" for surprise (α measurement I = .93; α measurement II = .93). Based on Oliver, Dillard, Bae, and Tamul (2012), we used the emotion words "pity", "compassion", "sympathy" to measure compassion (α measurement I = .94; α measurement II = .94). "Disgust", "dislike", "horror" were used to measure disgust (α measurement I = .96; α measurement II = .96).

Transportation items were based on Green and Brock's (2000) Transportation Scale but adapted in such a way that they could be used for both narrative and non-narrative warnings. This resulted in the following four items: "The warning affected me emotionally", "I could picture myself in the situation shown on the warning", "My attention was fully captured by the warning", and "While I was viewing, I did not notice any activity going on in the room around me" (α measurement I = .73; α measurement II = .79).

Identification was only measured in participants who had been presented with the narrative warnings. The items "While viewing the warning, I could feel the emotions X portrayed" and "During viewing, I could really get inside X's head" were based on Tal-Or and Cohen (2010), and "I identified with X" was based on Dillard

and Main (2013). The items were repeated for each character that was shown in the narrative warning, resulting in questions on identification with the *man next to coffin* ($\alpha = .81$), *woman next to coffin* ($\alpha = .81$), *sick man in bed* ($\alpha = .80$), *woman next to bed* ($\alpha = .84$), *child next to bed* ($\alpha = .85$). All items were presented in Dutch. The items are available from the first author on request.

6.2.4 Ethics approval

The study was approved by the Research Ethics Committee (CETO) of the Faculty of Arts, University of Groningen.

6.3 Results

6.3.1 Effects of narrative and non-narrative images

To test our hypotheses, we conducted a repeated measures ANOVA with type of image (narrative versus non-narrative) as within-participant factor. Content of non-narrative images ("teeth" versus "lungs") and content of narrative images ("dead baby" versus "sick father") were included as between-participants factors. There were no significant interactions between type of image, content of narrative-images and content of non-narrative images on any of the dependent variables (all p -values $> .05$). For this reason, in subsequent analyses data from the two narrative warnings were taken together, as were data from the two non-narrative warnings. Adding smoking behaviour (smokers versus non-smokers) as between-subjects factor also did not reveal any interaction effects on the main dependent variables (story perception: $p = .26$; perceived effectiveness: $p = .44$; transportation: $p = .10$), hence data from both frequent and occasional smokers, and from nonsmokers are taken together. Table 6.2 shows the means, standard deviations and test statistics for the two image types.

As a manipulation check, we first tested if our narrative images lead to higher scores on narrative perception than our non-narrative images. The ANOVA showed that our narrative images ($M = 5.34$, $SD = 1.35$) were indeed perceived more as a story than our non-narrative images ($M = 3.54$, $SD = 1.66$): $F(1,198) = 186.05$, $p < .000$, partial $\eta^2 = .484$. Although the narrative images were perceived more as a story than the non-narrative images, participants also saw some narrative structure in the non-narrative (see Table 6.2).

H1 assumed that narrative images would lead to a higher level of perceived effectiveness in comparison to non-narrative images. On average, participants rated

the narrative health warnings higher on perceived effectiveness compared to the non-narrative warnings. This effect was marginally significant: $F(1,194) = 3.06$, $p = .082$, partial $\eta^2 = .015$.

H2 assumed that narrative images would lead to a higher level of transportation in comparison to non-narrative images. In conformity with H2, narrative warnings scored higher on transportation than non-narrative warnings. With regards to emotions, narrative warnings aroused significantly more fear, anger, sadness and compassion than non-narrative warnings. Non-narrative warnings evoked more disgust and surprise.

Table 6.3 shows the means for identification, which was measured only after the narrative warnings. Because there is more than one person in each narrative image, there are multiple measures of identification per participant. We chose to use for each participant the highest, or maximum, score of these identification measures (overall $M = 3.98$, $SD = 1.66$, $\alpha = .88$).

Table 6.2 Means, standard deviations, and test statistics for all dependent variables, measured on a 7-point scale.

	<i>Narrative health warning</i>	<i>Non- narrative health warning</i>	<i>F-value</i>	<i>p-value</i>	<i>partial η^2</i>
Narrative perception	5.34 (1.35)	3.54 (1.66)	199.02	.000	.506
Perceived effectiveness	4.75 (1.43)	4.53 (1.47)	3.06	.082	.015
Fear	2.77 (1.57)	2.49 (1.53)	8.98	.003	.043
Disgust	3.49 (1.79)	4.99 (1.58)	112.56	.000	.359
Anger	3.21 (1.81)	2.83 (1.73)	10.77	.001	.051
Sadness	3.35 (1.78)	2.27 (1.51)	110.82	.000	.355
Compassion	3.75 (1.68)	2.19 (1.34)	162.29	.000	.447
Surprise	2.43 (1.41)	2.67 (1.58)	5.81	.017	.028
Transportation	2.88 (1.29)	2.60 (1.22)	8.86	.003	.042

Table 6.3 Means (and standard deviations) of identification for both narrative warnings, measured on a 7-point scale.

	<i>Narrative 1: dead baby</i>	<i>Narrative 2: sick father</i>
Identification with:		
• the man	3.11 (1.49)	2.01 (1.05)
• the woman	2.96 (1.46)	3.94 (1.62)
• the child	NA	4.31 (1.63)

6.3.2 Mechanisms underlying effectiveness

H3 assumed that emotions mediate the relationship between transportation and identification on the one hand, and perceived effectiveness on the other hand. RQ1 asked which emotions are related to perceived effectiveness. To test H3 and answer RQ1, we performed path analyses in AMOS 25.0. As identification could only be measured in case of narrative warnings, identification was excluded in the analysis for the non-narrative warnings. We tested whether transportation, and in case of the narrative warnings also identification, influenced perceived effectiveness directly or indirectly via the emotions that were measured (see Figure 3). Model fit was considered appropriate when the following criteria from Kline (2005) were met: (a) the model chi square divided by its degrees of freedom (χ^2/df) should be less than 3.0, (b) the comparative fit index (CFI) should exceed .90, and (c) the root mean square error of approximation (RMSEA) should be lower than .08. To achieve good model fit, we deleted the paths with non-significant parameters (cf. Byrne, 2001), and consulted the modification indices.

Figure 6.3 Initial model

Narrative warnings

First, we fitted the data from the narrative health warnings. The initial model had poor fit: $\chi^2/df = 20.87$, $CFI = .602$, $RMSEA = .314$. We deleted the non-significant paths and then consulted the modification indices. These suggested that the model fit would improve by adding paths between some of the emotions. Because earlier research (e.g., Ooms, Jansen, Hommes, & Hoeks, 2017; Dillard & Nabi, 2006; Dillard et al., 1996) showed that messages can arouse multiple emotions related to each other, we decided to allow the suggested paths between emotions that would result in the largest improvement in model fit. The following paths were added: sadness to fear: $\beta = .44$; anger to fear: $\beta = .17$; anger to sadness: $\beta = .26$; anger to surprise: $\beta = .38$; anger to disgust: $\beta = .53$; surprise to fear: $\beta = .19$; surprise to sadness: $\beta = .24$; disgust to compassion: $\beta = -.19$.

These changes resulted in good model fit: $\chi^2/df = 2.01$, $CFI = .978$, $RMSEA = .071$. Figure 6.4 shows the final model with only significant paths. Both transportation and identification are related to perceived effectiveness directly, but also indirectly via the emotion of sadness.

Figure 6.4 Final model for *narrative* warnings (standardized estimates, $p \leq .05$)

Non-narrative warnings

Next, we fitted the data from the non-narrative warnings. The initial model had poor fit: $\chi^2/df = 16.37$, $CFI = .526$, $RMSEA = .277$. Again, we deleted the paths with non-significant parameters and added paths between emotions as suggested by the modification indices: fear to sadness: $\beta = .47$; fear to compassion: $\beta = .38$, fear to surprise: $\beta = .29$; compassion to sadness: $\beta = .14$; anger to fear: $\beta = .26$; anger to sadness: $\beta = .32$; anger to surprise: $\beta = .18$; disgust to compassion: $\beta = -.14$; disgust to anger: $\beta = .21$.

The resulting model had good model fit: $\chi^2/df = 1.48$, $CFI = .989$, $RMSEA = .049$. As can be seen in Figure 6.5, transportation is related to perceived effectiveness directly, but also indirectly via the emotion of disgust.

Figure 6.5 Final model for *non-narrative* warnings (standardized estimates, $p \leq .05$)

6.4 Discussion

In this study we investigated the persuasive effects of narrative versus non-narrative visual health warnings on cigarette packages. A within-participants experiment was conducted in which health warnings on cigarette packages that could be interpreted as stories were compared with health warnings with non-narrative content (i.e. body parts). Furthermore, we investigated whether the mechanisms underlying the processing of the narrative visual warnings were similar to the processing of text-based narratives.

First, results showed that the health warnings portraying people in a specific context were indeed seen as more story-like than the non-narrative warnings, providing support for the claim that single, still pictures can evoke a narrative interpretation (Abbott, 2002; Bilandzic & Busselle, 2013). Participants were able to not only identify a narrative in the narrative warnings, but also to tell what the underlying story could be, as shown by their answers to the two open questions on narrative perception (“What did you see on the image?” and “According to you, what preceded this situation?”). For health campaigners, this means that they can use well-chosen visuals to tell a story, instead of long, wordy texts for which there is no space on cigarette packages anyway. Second, the narrative warnings we used tended to be perceived as more persuasive than non-narrative warnings, which supports the findings of Brennan et al. (2017). In addition, our narrative warnings caused more transportation, fear, sadness, compassion and anger than the non-

narrative warnings. As could be expected in view of their explicit content (i.e. diseased body parts), the non-narrative warnings provoked more disgust than the narratives; they also aroused more surprise. Because the warnings used in our study represent real cigarette packages, images are combined with text, which makes it difficult to claim that the image alone is responsible for the found differences and not the (interaction with the) corresponding textual slogan. Future research should investigate under what conditions the threatening, general statement is necessary for the effects of narrative warnings.

With regard to the mechanisms underlying narrative persuasion, we found that transportation had not only a direct, but also an indirect influence - via the evocation of emotions - on perceived effectiveness of both narrative and non-narrative warnings. More specifically, we found that for the narrative images sadness mediated the effects of transportation and identification on perceived effectiveness, while for non-narrative warnings the only significant mediating emotion was disgust. Our findings therefore underline the importance of distinguishing specific emotions, as was also argued by Popova et al. (2017), instead of grouping them together as positive or negative emotions. This way, we were able to specify the outcomes of Cho et al. (2018), who also found evidence for a role of negative emotions in motivating behaviour change. The finding that narrative and non-narrative warnings lead to roughly the same effects, but via different emotions, suggests that in practice both warning types may be used. In a content analysis of smoking warnings, Sutton et al. (2018) found that warnings that contain graphic depictions of diseases (comparable to our non-narrative warnings) and testimonials (comparable to our narrative warnings) increase the emotionality of smoking warnings and their perceived effectiveness, in comparison to warnings without these features. Perhaps the two warning types can be combined on cigarette packages, for example a sadness-evoking narrative image on the front and a disgust-evoking non-narrative image on the back. So far as we know, all smoking products now have the same image on the front and the back. Combining sadness-evoking narrative images with disgust-evoking non-narrative images may also fit in the policy of plain packaging, which an increasing number of countries is now implementing. According to this policy, all packages must have the same shape and colour, and may only contain the name of the manufacturer, along with health warnings and photos. This makes it possible to enlarge the size of the pictures, which can further increase the effectiveness of smoking warnings. Earlier research has found that warnings that

are larger in size are more effective than smaller warnings (Hammond, 2011; Wakefield et al., 2015).

Remarkably, in our study the emotion of fear was not a significant predictor of effectiveness, neither for narrative images, nor for non-narrative images. This finding contrasts with the conclusion reached in Tannenbaum et al.'s (2015) meta-analysis that fear appeals messages can positively influence attitudes, intentions and behaviours, in comparison to messages designed to depict relatively lower levels of fear. Perhaps the images on cigarette packages do not really scare people anymore, as the pictorial health warnings were introduced in The Netherlands (where this study was conducted) as far back as 2016. The low mean scores on fear, fluctuating around 2.5 on a 7-point scale, support this idea. Another reason for the rather low scores of fear may be that the warnings did not fully resonate with the relatively young participants. Our non-narrative warnings showed the traditional cancerous lungs and yellow teeth, but young people seem to believe that such negative longer-term outcomes will not happen to them (Gendall, Hoek, & Gendall, 2018). The narrative warnings also portrayed situations (two mourning people above a small coffin, respectively a woman and a child next to a man lying in a hospital) that many young people might not feel a close affinity with, because they will not have experienced, or expect to experience in the near future, such situations themselves. Thus, for both the non-narrative and narrative warnings, the susceptibility for the presented risks might be perceived as not very high, which can result in a rather low level of perceived fear (cf. Witte, 1992).

Although we found that different emotions were involved in the processing of narrative versus non-narrative stimuli, which is in line with the discrete emotion approach (cf. Dillard & Peck, 2000; Myrick, 2015), we also found that the emotions were related to each other. The direction of the emotion paths are rather unclear, and it thus seems likely that the relationship between emotions may be reciprocal instead of causal. In general, it must be noted that our data were measured at one point in time, and hence causality claims cannot be made. However, the directed paths in our mediation models were motivated by multiple empirical studies (cf. Ophir et al. 2017; Sutton et al., 2018).

Surprisingly, transportation also played a role in the processing of non-narrative stimuli, as it directly and positively influenced perceived effectiveness of non-narrative images. Apparently, receivers can also be transported into non-narratives (cf. Green & Brock, 2000). The mean scores of transportation were not

very high (below midpoint of the scale) for both warning types, which may be the case because viewing an image goes faster than reading a story or watching a video, resulting in less time to fully experience transportation. The rather low scores might also have been caused by the way we measured transportation: We used a subset of the items that are normally used to measure transportation because only few were actually suitable for both warning types. We did, however, cover all three elements of transportation according to Green and Brock (2000): imagery, affect, and attentional focus. In future research, it would be helpful if we could find engagement measures specifically meant for both narratives and non-narratives.

A final remark concerns the measure of effectiveness. Measuring perceived effectiveness allowed us to use the same measure for both smokers and nonsmokers instead of measuring behavioural intentions to quit smoking respectively not start smoking. While it has been argued in several studies (e.g. Dillard et al., 2007; Bigsby et al., 2013) that perceived effectiveness can be seen as an antecedent of actual effectiveness, a recent study of O’Keefe (2018) suggests that measures of perceived effectiveness matched those of actual effectiveness in 58% of the comparisons. More research is needed in which actual smoking behaviour is measured.

In conclusion, our study shows that (student) audience members are able to conjure up a story from still pictures plus a short text line. The processing of such narrative messages seems to be comparable to that of purely textual narratives. We found that transportation and identification influenced perceived effectiveness of such narrative stimuli both directly and also indirectly (via the emotion of sadness). Transportation was also positively related to the perceived effectiveness of non-narrative warnings, both directly as well as indirectly via the emotion of disgust. Narrative and non-narrative health warnings alike can thus persuade receivers through emotion, although the specific emotion that is responsible for the persuasive effects was shown to differ. It is possible that warnings that arouse both sadness and disgust, or cigarette packages with a sadness-evoking image on the front and a disgust-evoking image on the back of a cigarette package, will turn out to be the most effective combination. More research is recommended to determine which combination of smoking warnings can best be used in health communication.

CHAPTER 7

General discussion

This dissertation focuses on ‘narrative fear appeals’, where two message types that are often used in persuasive health communication - narratives and fear appeals - are combined. Narrative fear appeals can be defined as fear-arousing messages in the form of a narrative, that generally present people who were confronted, and had to cope with a health threat. There is a large body of literature on the processing of fear appeals, in which the Extended Parallel Process Model (EPPM; Witte, 1992; 1998) plays a prominent role. There is an equally 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 (e.g., Green & Brock, 2000; Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013). However, while research (e.g. Morman, 2000; Murray-Johnson et al., 2001) and practice (e.g. hartstichting.nl) often use fear appeals in narrative form, there is a lack of research that explicitly examines the processing and eventual outcomes of narrative fear appeals. That is why the objectives of this dissertation were: (1) investigating how the narrative mechanisms of transportation and identification are related to fear and other emotions that may be elicited during the *processing* of narrative fear appeals, and (2) investigating how these narrative mechanisms and emotions are associated with *persuasive outcomes* of narrative fear appeals.

This chapter first summarizes the main findings of this dissertation regarding 1) what the mechanism is behind the processing of narrative fear appeals and 2) how this mechanism can be affected, and discusses the theoretical implications. Subsequently, the strengths and limitations of the conducted studies will be discussed and implications for practice will be presented. Finally, general conclusions will be drawn.

7.1 Summary of main findings

7.1.1 Identifying mechanisms

First, we focused on the mechanisms through which narrative fear appeals may persuade and the theoretical model that can be used to explain and predict this persuasion process and its outcomes. It seems rather obvious to use one of the most prominent fear appeal models, the EPPM, but it is unclear to what extent this model also applies to narrative fear appeals. That is why our first two research questions were:

RQ1: How valid is the EPPM in predicting the processing and persuasive outcomes of narrative fear appeals?

RQ2: What is the role of narrative mechanisms (transportation and identification) and emotions (fear and other emotions) in the processing of narrative fear appeals and the persuasive outcomes of these messages?

In Chapter 2, we tested four propositions of the EPPM for which earlier research found mixed support (see Popova, 2012): propositions 2, 6, 7, and 12. Proposition 2 posits that, when efficacy is high, greater threat leads to greater message acceptance. Proposition 6 claims that fear causes fear control responses. Proposition 7 claims that threat mediates the relation between fear and danger control responses. Finally, proposition 12 posits that individual differences influence outcomes indirectly, as mediated by perceived threat and efficacy. By means of a correlational study ($N = 116$) into a narrative fear appeal about breast cancer, we found that none of these propositions received unequivocal support. This finding suggests that we should be careful with using the EPPM to explain how narrative fear appeals work (RQ1). For one thing, the EPPM does not take into account narrative characteristics. Earlier research (e.g. Cohen, 2001; Green & Brock, 2000) showed that narratives can evoke transportation and identification, and that transportation and identification exert their persuasive influence by evoking emotional responses. The roles of transportation and identification in the processing of fear appeals in narrative form are not clear yet, however.

In the studies discussed in Chapter 3, we examined how emotions, transportation, and identification are related to the persuasive outcomes of narrative fear appeals. Based on earlier studies, we hypothesized that transportation and identification would be positively associated with the emotions of fear, sadness, surprise, and compassion, which in turn would predict attitude and intentions toward performing self-exams. To test these assumptions, we conducted a series of correlational studies in which participants were presented with a story about a protagonist who is suffering from cancer (study 1: breast cancer, study 2: testicular cancer, study 3: skin cancer). Path analysis revealed that 1) transportation was positively associated with four emotions: fear, sadness, surprise, and compassion, while identification positively correlated with only one emotion: compassion; 2) transportation was directly and positively associated with attitude and behavioral intention toward performing self-exams; 3) only the emotion of fear was a predictor of intention to perform self-exams (see Figure 7.1A).

Figure 7.1 Models of processing of narrative fear appeals

7.1.2 Manipulating mechanisms

In view of the finding that transportation and identification can contribute to the persuasiveness of narrative fear appeals, we wanted to examine how the levels of transportation and identification, and consequently also the emotions that were evoked and the level of persuasion, could be increased. That is why we formulated the following question:

RQ3: Which message characteristics can influence the mechanisms underlying the processing of narrative fear appeals and the persuasive outcomes of these messages?

One potential message characteristic often studied in this context is *similarity*, or the extent to which the protagonist in a story is presented as similar to the readers. It has been suggested that similarity with a protagonist can positively influence both transportation and identification (Slater & Rouner, 2002), but empirical results are rather mixed (De Graaf et al., 2016).

In the studies discussed in Chapter 4, we tried to shed some light on this issue. We created two versions of the breast cancer story from the study discussed in Chapter 3 that differed with respect to the age group of the protagonist and the living conditions related to age group (student versus work; boyfriend versus husband; apartment versus house). In the two experiments discussed in Chapter 4, female students ($N = 83$ in Experiment 1; $N = 62$ in Experiment 2) were randomly assigned to one of the two story versions. In the similar condition, the protagonist was a 22-year-old female student. In the dissimilar condition, the protagonist was a 59-year-old working woman. In neither experiment, significant differences were found between the two versions on identification, attitude, or intention. In Experiment 1, there were also no differences in transportation and fear, while in Experiment 2, the participants did report higher levels of transportation and fear when they read about the similar protagonist. These differences between the two experiments might be explained by the way the experiments were conducted. It could be the case that in the second experiment, which was conducted online, respondents were more able to focus on the text and more open to experiencing emotions, because they were at home instead of in a lecture room like the participants in the first experiment. In Experiment 2, we were able to examine the possible mediating role of *perceived* similarity in the effects of manipulated

similarity on the measured variables. We found that the similarity manipulation *indirectly* influenced transportation, identification, emotions, and both measured intentions: the story with the similar protagonist led to more perceived similarity, which in turn positively influenced transportation, identification, compassion, sadness, intention to perform self-exams and the intention to donate to a cancer charity. These two experiments provided a tentative answer to RQ3: the manipulation of similarity can enhance narrative persuasion, but only when receivers actually perceive themselves as similar to the story's protagonist, stressing the need for researchers to achieve high levels of perceived similarity.

Effects of similarity may be stronger when similarity is on a story-relevant dimension than when a simple demographic is varied (Green, 2006; Hoeken, Kolthoff, & Sanders, 2016). That is why in the study presented in Chapter 5 we added the similarity manipulation of *gender* to the manipulation of age as studied in Chapter 4. We now also included testicular cancer as health topic. Similarity in age and similarity in gender were assumed to be relevant to the chosen health themes, since the susceptibility for breast cancer and testicular cancer is age and gender sensitive: breast cancer most often affects older women, and testicular cancer is most often found in young men. Additionally, we reinforced our similarity manipulation by providing more details about the living conditions of the protagonist, as the only studies that showed effects of similarity manipulated the place where the protagonist lives (De Graaf et al., 2016). Chapter 5 thus elaborated on Chapter 4 by reporting on a study where we manipulated both age and gender in stories on breast cancer and testicular cancer. These stories were shown to male and female participants with a student age (i.e. 18-30 years old; $n = 324$) or above 40 years old ($n = 258$). It turned out that the effects of similarity depended heavily on the age group of the participants. For students, presenting a protagonist from the same age group resulted in higher scores on perceived similarity, transportation, identification, and intention to donate than a protagonist with an older age. Gender similarity only produced differences in perceived similarity. For older adults, age or gender of the protagonist did not seem to matter, as nearly no differences in persuasive measures or the other dependent variables were found.

In Chapter 5, the role of perceived similarity was further examined. There, we tested whether the model for the processing of narrative fear appeals as presented in Chapter 3 (see Figure 7.1A) would hold when perceived similarity is included. We added a second variable, *self-referencing*, that may also be relevant

for explaining the processing of narrative fear appeals, as it can contribute to narrative impact (De Graaf & Van Leeuwen, 2017). With data from all participants, it was found that perceived similarity was positively associated with transportation and identification. The three emotions we measured (fear, sadness, compassion) were predicted by transportation or identification, and fear also by self-referencing. Of these emotions, only compassion predicted attitudes; sadness predicted only the intention to donate. Transportation turned out to be a significant predictor of attitudes and intentions towards both donation and performing self-exams (see Figures 7.1B and C). Returning to RQ2 and RQ3, perceived similarity seems a relevant addition to a model intended to explain and predict the processing of narrative fear appeals. In contrast to earlier studies (e.g. Dillard & Main, 2013), a relevant contribution of self-referencing was not found; self-referencing was not associated with persuasive effects.

While Chapters 3-5 used a written narrative, a way of presentation that most studies into narratives choose according to the meta-analysis of Shen, Sheer, and Li (2015), the study presented in Chapter 6 explored whether presented a story through a medium that is more frequently used in mass media would influence the mechanisms behind narrative processing (RQ3): narrative images. We conducted a within-participants experiment ($N = 200$ students) in which narrative visual warnings on cigarette packages portraying people in a specific context were compared with non-narrative visual warnings displaying gruesome, non-narrative content (i.e. body parts). We were interested in learning whether the narrative visuals would be perceived as narratives and processed through the same mechanisms that underlie the persuasiveness of text-based narratives as studied in Chapters 3-5 (RQ2). The narrative visual warnings were indeed regarded as more story-like than the non-narrative visual warnings. In addition, narrative visual warnings caused more transportation, fear, sadness, compassion, and anger than the non-narrative visual warnings. With regard to the underlying persuasive mechanisms, we concluded that the processing of the narrative images seems to be comparable to that of narratives in written form: We found that transportation, but also identification, directly, and also indirectly via the emotion of sadness, influenced perceived effectiveness (see Figure 7.1D). Interestingly, we found evidence for a role of transportation in the processing of non-narrative visual warnings as well. Here, transportation was related to perceived effectiveness both directly as well as indirectly, now via the emotion of disgust.

7.2 Theoretical implications of main findings

The study results presented above have a number of important implications for research on fear appeals and narratives. For one, fear appeals such as the warnings on cigarette packages may be perceived as narratives, even when no explicit story is been told. Abbott (2002) already argued that pictures can evoke narrative interpretations, but an empirical test was missing. The results presented in Chapter 6 confirm that narrative visual smoking warnings can be perceived as stories. It has also been argued that other fear appeals, such as victim statements or public service announcements, can be considered narratives (Busselle & Bilandzic, 2009). This could mean that researchers who studied fear appeals were, in fact, also studying narratives, unknowingly. For future research into narrative fear appeals, and maybe fear appeals in general, it will be necessary to take into account variables concerned with fear appeals as well as variables concerned with narratives. In this dissertation we showed which variables appear to be especially relevant for explaining and predicting the persuasion process of narrative fear appeals and how they are related.

Firstly, transportation appeared to be fundamental in the persuasion of narrative fear appeals. Green (2004) already stressed the importance of transportation for narratives by stating that “once individuals have become transported into the narrative, other lessons may then be learned” (p. 262). This dissertation shows that transportation is also an important factor in the processing of fear appeals in narrative form, as we found that transportation directly and indirectly led to persuasive effects. The direct effect of transportation on intention provides evidence for a non-emotional, more *cognitive* route to persuasion (cf. Dunlop, Wakefield, & Kashima, 2009). Indeed, research has suggested that narratives can increase persuasion by overcoming resistance, as outlined in the EORM, the Entertainment Overcoming Resistance Model (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 can reduce this counterarguing (Green & Brock, 2000; Kreuter et al., 2007).

The indirect persuasive effects of transportation on intention refer to the emotional, or experiential (Dunlop et al., 2010) route, as emotions mediated this effect. In all relevant chapters, we repeatedly found that both transportation and identification predicted emotions, which in turn were associated with attitude and

intention. But perhaps there are reciprocal, instead of unidirectional, relationships between transportation and identification on the one hand, and emotions on the other, meaning that transportation and identification can reinforce emotions, and vice versa (cf. Nabi & Green, 2015; Igartua & Fiuza, 2018). For example, a health message about the severe consequences of a certain disease can immediately evoke a level of fear, but receivers can get even more frightened when they imagine themselves to be the main character who is undergoing the negative consequences that the message describes. Future research is needed to empirically test such a reciprocal relationship.

The question which specific emotions affect behavioral intentions (cf. Dillard & Peck, 2002) remains. In Chapters 2 and 3, fear was a significant predictor of intention, but in Chapters 4, 5 and 6, sadness and compassion were. These findings have two implications. First, they underline the importance of distinguishing *specific* emotions, instead of grouping them together as positive or negative emotions, a point that was also made by Nabi (2006) and Popova et al. (2017). Second, our findings prove that, although the exact persuasive power of an emotion depends on the situation and receivers, emotions are fundamental in persuasion. Recent research into the effectiveness of different emotions in anti-drunk-driving campaigns (Becheur & Das, 2018) also shows that basic emotions, such as fear and sadness can enhance persuasion. Thus, the need to study emotions remains strong, just as the need to study how emotions can best be elicited through messages. Adding an explicit description of the emotions felt by the protagonist, just as we did in our stimuli, does not appear to increase emotions, as shown by Gavaruzzi et al. (2018). Telling the story of an individual facing a health threat seems sufficient to arouse emotions.

Another variable that seems to be an important factor in the persuasion process of narrative fear appeals is *perceived similarity*. We found that perceived similarity influenced the narrative mechanisms underlying narrative persuasion. Thus, it may be wise for future studies into the effects of narrative fear appeals to include measurements of perceived similarity. This way, it can be examined if, and how, similarity may complement models of narrative persuasion.

In finding out how transportation, identification, and emotions are related to persuasive outcomes of narrative fear appeals, we examined whether the EPPM could serve as a starting point, as this is the most prominent model for explaining the processing of fear appeals. The EPPM is valued for “its ability to guide decisions

at almost every step of the campaign’s design, implementation, and evaluation” (Popova, 2012, p. 469). We found, however, little support for the propositions of the EPPM. Hence, the EPPM in its current form does not seem appropriate to explain the processing and persuasive outcomes of narrative fear appeals. Instead, we suggested models that are both theoretically and empirically based, and that include variables related to narratives (see Figure 7.1). These models all show that transportation and identification contribute to the persuasive effects of narrative fear appeals, directly or indirectly via emotions. Figure 7.2 provides a schematic representation of this suggested framework. Future research is encouraged to test, extend, and refine our framework.

Figure 7.2 Framework for processing of narrative fear appeals

7.3 Methodological issues

In this section we reflect on several methodological issues. First of all, we discuss the use of self-reports and the operationalizations of emotions, transportation, and identification. Also, we review our decision for measuring behavioral *intentions* as opposed to actual behavior. In the second section, we reflect on our data analysis methods. Finally, we discuss the extent to which our findings can be generalized to other participants and materials.

7.3.1 Measurement

The measurements in this dissertation relied mainly on self-report. One general disadvantage of self-reports is the possibility of socially desirable answers. To reduce this possibility, we emphasized that participation was fully anonymous. Another issue with self-reporting is that it requires participants to be aware of their own feelings, which can be challenging especially in the case of emotions. However, self-reports of emotions can be valid, especially when they relate to current emotion states instead of past or future experiences of emotions (Mauss & Robinson, 2009).

Mauss and Robinson (2009) even state that self-reported measures of emotions can be better in identifying discrete emotions than psychophysiological measures, mainly because of the difficulties in linking specific emotions such as fear, sadness, and disgust to particular brain states or physiological responses.

For transportation and identification, self-reports are still used most often, though some argue that such measures *after* reading (offline) should be complemented by online measures, *during* reading (Van Krieken, Hoeken, & Sanders, 2017). However, questionnaires exist that have shown good reliability and validity both for transportation (Green & Brock, 2000; Appel, Gnambs, Richter, & Green, 2015) and for identification (Cohen, 2001; Tal-Or & Cohen, 2010). 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 it seems rather difficult to do so. In various earlier studies, substantial differences exist between the narrative materials used, ranging from simple pictures and small vignettes to elaborate written stories, movies, and even television series (cf. Appel et al., 2015). Due to the specific kind of story we used (a short testimonial of someone who shared his / her experiences with cancer), we had to exclude a number of items that were used in previous research because they were not pertinent to the story at hand. When a selection of items is used, it is crucial that researchers explain exactly which items they chose, and why they did so, in order to avoid incorrect assumptions about the operationalization of the concept under discussion.

A final remark concerns the relationship between behavioral intentions and actual behavior. The ultimate goal of health message designers is to achieve behavior change. For researchers in this field, however, measuring behavior and behavior changes is difficult. That is why we, and many researchers before us, have used behavioral intention as a proxy for actual behavior, based on models such as the Theory of Planned Behavior (Ajzen, 1991). A meta-analysis by Webb and Sheeran (2006) shows that intention has a medium sized effect on risk-protective behavior (e.g. self-examination). In a review of meta-analytic studies, Hoeken (2019) also concludes that there is merit in targeting determinants of behavior (such as attitude and intention), because they do influence behavior even though effects are limited. Concluding, measuring determinants of behavior instead of behavior itself is not ideal, but it does not seem to be very problematic.

7.3.2 Data analysis methods

For model testing, we used two data analysis programs: PROCESS for mediation analyses and AMOS for structural equation modelling (SEM). In comparison to PROCESS, SEM allowed us to include more independent variables (transportation and identification), and outcomes (both attitude and intention) in one model. Because of SEM's ability to analyze a greater set of relationships simultaneously, SEM is particularly useful for health communication research (Stephenson, Holbert, & Zimmerman, 2006).

Both data analysis programs start from certain assumptions about causality, based on prior knowledge and scientific research. Although these causal assumptions are not *proven* by PROCESS or SEM, they do seem *plausible* when the data fits (Bollen & Pearl, 2013).

7.3.3 Generalizability

Our methodological choices regarding the stimuli that were used and the respondents we asked to participate evidently have consequences for the generalizability of our results. In most of our studies, materials consisted of a one-page testimonial about a protagonist who is confronted with cancer. Although the age and gender of the protagonist differed, just as the type of cancer, the storyline remained identical.

While only students participated in the studies discussed in Chapters 2, 3, 4, and 6, also older men and women participated in the study presented in Chapter 5. It is important to address different audiences (cf. Dillard et al., 1996), as receivers from different groups may react differently to emotional messages. The results presented in Chapter 5 confirmed that there were dramatic differences between student and adult participants: They had different scores on nearly all variables that we measured. Thus, our findings suggest that researchers should be very careful with generalizing from findings gathered from the student samples that are standardly used in research to the population in general.

7.4 Practical implications

Our results have a number of important practical implications for health campaigners. First, as has become apparent from our results presented in Chapter 5, health campaigners should take the age of the audience into account when designing health messages, since different age groups appeared to react differently

to similarity manipulations. When health campaigners want to reach young people, we advise them to stress age similarities between the protagonist and the reader; we see less need to create gender similarity. Both the studies in Chapter 3, where male and female participants proved to equally identify with a male or female protagonist, and in Chapter 5, where nearly no effects for gender similarity were found, suggest that gender similarity does not affect identification, transportation or behavioral determinants. In cases where age tailoring is impractical or impossible (Gavaruzzi et al., 2018), campaigners may want to choose young protagonists. A young main character was most persuasive for students and did not negatively affect the persuasive results for older people.

Second, stories do not necessarily have to be told through print, as is often done by researchers (see Shen, Sheer, & Li, 2015, for an overview), to activate narrative processes. Our results presented in Chapter 6 suggest that receivers are able to conjure up a story from still pictures too, and that visual narratives may elicit the same processes as print narratives do. This is good news, as visual narratives often are easier to distribute in practice, for example on bill boards or cigarette packages, than written ones.

Finally, health campaigners using fear appeal messages should stress the efficacy component of the recommended action, as research (e.g. Ooms, Jansen, & Hoeks, 2015; Peters, Ruiter, Ten Hoor, Kessels, & Kok, 2018) has shown repeatedly that fear appeal messages are more persuasive when perceived efficacy is high than low.

7.5 Conclusion

This dissertation makes clear that the EPPM, one of the most prominent theoretical models for predicting and explaining how fear appeals work, is not appropriate to predict and explain the processing and persuasive outcomes of narrative fear appeals in its current form. We saw that when fear-arousing messages were presented as stories, especially transportation played a crucial role in evoking emotions and influencing behavioral attitudes and intentions. Fear acted as a motivator to behavioral intentions in one of our studies, but in the other studies, compassion and sadness had the strongest persuasive power. We found a number of models that fitted our empirical data. These models have in common that they identify transportation and identification as strong contributors to the persuasive effects of narrative fear appeals, either directly or indirectly via emotions. We trust

that this framework can form the basis for future investigations of narrative fear appeals.

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SUMMARY

When hearing the words ‘fear appeal’, people often think of images of black lungs, yellow teeth, and bloody lumps as depicted on cigarette packages in many countries. Not only gruesome images, however, are used to scare people away from smoking and other bad habits. Some cigarette packages, for instance, show images that suggest a tragic mini-story, for instance by portraying a sad looking couple next to a small coffin. Explicit or implicit stories, or *narratives*, are increasingly used in health communication, and research has shown that they can have a positive impact on the individual’s health-related behavior. These positive effects may be achieved by ‘transporting’ receivers into the story world, meaning that people lose themselves in the story and forget the real world around them. In addition, receivers may identify with one or more of the story’s characters: they imagine themselves to be one of the characters and think they feel his or her emotions. It is unclear, however, what role the narrative mechanisms of transportation and identification play in the processing of *narrative fear appeals*. Such fear appeals can be defined as fear-arousing messages in the form of a narrative, that present people who have been confronted with a certain threat and who were able to effectively fight that threat. Narrative fear appeals are the central theme of this dissertation. We investigated (1) how the narrative mechanisms of transportation and identification are related to fear and other emotions that may be elicited during the processing of narrative fear appeals, and (2) how these narrative mechanisms and the emotions that are aroused are associated with the persuasive outcomes of narrative fear appeals.

Chapter 1. General introduction

Chapter 1 provides the theoretical context of this dissertation by discussing earlier research into narratives, fear appeals and emotions. At the end of Chapter 1, the following research questions are presented.

- RQ1: How valid is the often referred to *Extended Parallel Process Model* (Witte, 1992) in predicting the processing and the outcomes of narrative fear appeals?
- RQ2: What is the role of narrative mechanisms (transportation and identification) and emotions (fear and other emotions) in the processing of narrative fear appeals and the outcomes of these messages?

RQ3: Which message characteristics can influence the mechanisms underlying the processing of narrative fear appeals and the outcomes of these messages?

These research questions are addressed by five empirical studies that are discussed in Chapters 2-6.

Chapter 2. Evaluating four basic propositions of the EPPM

The *Extended Parallel Process Model* (EPPM; Witte, 1992) is probably the most referred to theoretical model for predicting and explaining how fear appeals work. However, so far most propositions of the EPPM have not explicitly been tested, and if so, have received no or mixed empirical support (Popova, 2012). To help clarifying the relationships between the variables of the EPPM, we tested four of the EPPM's propositions in a correlational study. Participants were 116 female students. They were presented with a narrative fear appeal about breast cancer and were asked to answer questions about the EPPM-variables such as perceived severity of the threat and the reader's perceived susceptibility.

Mediation analyses showed that a large part of the relationships between the concepts of the EPPM and the outcomes of fear appeals differed from what the EPPM predicts: threat and intention did not prove to be related, threat did not mediate the effect of fear on intention, and fear did not influence the fear control responses. The findings from this study raise questions regarding the appropriateness of the EPPM and imply that we should be careful with using the EPPM to explain how narrative fear appeals work.

Chapter 3. Examining the processing of narrative fear appeals

The lack of support found in Chapter 2 for a number of relationships that follow from the EPPM may possibly be explained by its disregard of narrative characteristics that can be present in fear appeal messages. In the studies presented in Chapter 3 we examined the mechanisms underlying the processing of *narrative* fear appeals. Student 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). Subsequently, they filled out a questionnaire with items measuring transportation, identification, attitude, and intention, and also the emotions they felt while reading the story.

Path analysis revealed that transportation was positively associated with four emotions (fear, sadness, surprise, and compassion), whereas identification positively correlated with only one emotion (compassion). Only the emotion of fear was a predictor of intention to perform self-exams. Narrative fear appeals can also be persuasive without the mediating role of emotions: transportation was directly and positively associated with attitude and behavioral intention toward performing self-exams. Taken together, these findings suggest that identification and especially transportation are very important factors in the processing of narrative fear appeals.

Chapter 4. Exploring the role of similarity in narrative persuasion

Given the key role transportation and identification appear to play in narrative persuasion (see, for instance Green & Brock, 2000; De Graaf, Hoeken, Sanders, & Beentjes, 2012), it is of great interest to know how these mechanisms can be increased. Slater and Rouner (2002) suggest that the extent to which the protagonist is presented as similar to the participants can influence both identification and transportation. Empirical evidence for the effects of similarity on transportation and identification, and consequently persuasion is mixed, however (De Graaf, Sanders, & Hoeken, 2016). To examine the effects of similarity, two experiments were conducted. In Experiment 1 ($N = 83$), female students were presented with one of two versions of a story about the severe consequences of breast cancer. In one version, the protagonist was a 22-year-old female student ('similar' condition); in the other version, the protagonist was a 59-year-old working woman ('dissimilar' condition). After the narrative, questions were asked about transportation, identification, emotions, attitude, and intention. Experiment 2 ($N = 62$) was an online replication of Experiment 1, in which we added a measure of perceived similarity.

In neither experiment, significant differences were found between the two versions regarding identification, attitude, or intention. Mediation analyses in Experiment 2 did show, however, that the manipulation of similarity had an indirect effect, via perceived similarity, on identification, transportation, emotions, and intentions. These findings suggest that manipulating similarity may influence persuasion, but only if this similarity is perceived as such by the participants.

Chapter 5. Revisiting the role of similarity in narrative persuasion

Earlier studies suggested that effects of similarity are stronger when the similarity manipulations are relevant to the general theme of the narrative (Hoeken, Kolthoff, & Sanders, 2016; Cohen, Weimann-Saks, & Mazor-Tregerman, 2017). Following this assumption, we present an experiment in Chapter 5 in which we varied age and gender of the protagonist as features of central relevance to the topics of the story versions that were used, namely breast cancer (predominantly occurring in the group of elder females) and testicular cancer (predominantly occurring in the group of younger males). Similarity in age and gender increases the perceived risk for the depicted health threat. There were four story versions, with four different protagonists: a 22-year-old female student, a 22-year-old male student, a 50-year-old working mother and a 50-year-old working father. Male and female participants ($N = 582$) were randomly assigned to one of the four versions. Part of the participants were students (aged 18-30), another part were older adults (over 40). After reading the story, the participants answered questions about transportation and identification, and also about their intentions to conduct a monthly self-examination, and to donate money to a cancer charity.

For older adults, age or gender of the protagonist did not seem to matter, as no differences in transportation, identification, or persuasive measures were found. For students, however, age similarity but not gender similarity had an effect on identification, transportation, and the intention to donate. As for the underlying mechanisms, the results of structural equation modeling suggested that the concept of 'perceived similarity' would be a relevant addition to models of narrative persuasion, as it was significantly related to the narrative processes of transportation and identification, which, in turn, predicted attitudes and behavioral intentions, both directly - in the case of transportation - or indirectly, via the emotion of compassion. In conclusion: both manipulated and perceived similarity are important for narrative persuasion.

Chapter 6. Exploring the processing of narrative visual smoking warnings

Whereas Chapters 3-5 used a written narrative, Chapter 6 focused on *visual* narrative fear appeals, in particular smoking warnings showing an image of people in a specific context. We explored if such 'narrative visuals' are indeed perceived as mini-narratives and are processed through the same mechanisms that underlie the persuasiveness of text-based narratives studied in Chapters 3-5. We conducted a

within-participants experiment ($N = 200$) in which two visual narrative fear appeals on cigarette packages portraying people were compared with two visual non-narrative fear appeals displaying black lungs and decaying teeth. Each student participant was exposed to one of the two visual narrative fear appeals and one of the two visual non-narrative fear appeals. After each fear appeal, participants answered questions on narrative perception, transportation, identification, emotions, and perceived effectiveness.

As expected, the visual narrative fear appeals were perceived as more story-like than the non-narrative counterparts. In addition, the visual narrative fear appeals caused more transportation, fear, sadness, compassion, and anger than the visual non-narrative fear appeals. With regard to the underlying persuasive mechanisms, the processing of the visual narrative fear appeals seemed to be comparable to that of narrative fear appeals in written form: We found that transportation, and now also identification, had a direct effect on perceived effectiveness, and also indirectly, via the emotion of sadness. Interestingly, we also found evidence for a role of transportation in the processing of visual non-narrative fear appeals. Here, transportation was related to perceived effectiveness, both directly as well as indirectly, via the emotion of disgust.

Chapter 7. General discussion

In Chapter 7, the theoretical and practical implications of the main results reported on in Chapters 2-6, are discussed. This dissertation shows that transportation in particular is an important factor in the processing of narrative fear appeals, as we found that transportation had both direct and indirect effects on persuasion. The indirect effect of transportation on intention refers to the emotional route, as emotions mediated this effect. Fear, sadness, and compassion were found to be predictive of behavioral intentions, although their persuasive power differed per study. The direct effect of transportation on intention provides evidence for a more cognitive route to persuasion (cf. Dunlop, Wakefield, & Kashima, 2009). Another variable that can be an important factor in the persuasion process of narrative fear appeals is perceived similarity. We found that perceived similarity may influence the narrative mechanisms underlying narrative persuasion.

Health practitioners are advised to take the option into consideration of using stories to persuade their audience, and to take the age of the audience into account when designing such stories. Different age groups proved to react

differently to similarity manipulations. When health campaigners want to reach young people, we advise them to predominantly stress age similarities between the protagonist and the reader. In cases where age tailoring is impractical or impossible (Gavaruzzi et al., 2018), campaigners may want to choose young protagonists. Additionally, we found that a well-chosen visual mini-narrative may suffice to make the message benefit from the narrative mechanisms: Receivers proved to be able to conjure up a story from no more than one still picture, and such visual narratives may elicit the same processes as written narratives do.

In conclusion, this dissertation identified transportation in particular as a strong contributor to the persuasive effects of narrative fear appeals, either directly or indirectly, via emotions. We hope that the theoretical and practical consequences of the outcomes of our studies may contribute to more effective health communication.

SAMENVATTING

Bij angstaanjagende boodschappen, of *fear appeals*, denken mensen vaak aan foto's van zwarte longen, gele tanden of bloederige gezwellen zoals die in veel landen staan afgebeeld op sigarettenpakjes. Maar er wordt niet alleen van dit soort gruwelijke plaatjes gebruik gemaakt om roken en andere ongezonde gewoontes te ontmoedigen. Zo staan op sommige sigarettenpakjes afbeeldingen die een mini-verhaal suggereren, over een treurend echtpaar bijvoorbeeld bij een wit grafkistje. Expliciet of impliciete verhalen, of *narratieven*, worden steeds vaker ingezet in gezondheidsvoorlichting. Uit verschillende studies blijkt dat narratieven een positief effect kunnen hebben op het gezondheidsgedrag. Daarbij is het van belang dat lezers of kijkers zo 'getransporteerd' worden in het verhaal dat ze de wereld om zich heen als het ware vergeten. Bovendien moeten ze zich kunnen identificeren met één of meer personen in het verhaal: ze moeten zich zo kunnen inleven dat ze de emoties van die persoon of personen meevoelen. Welke rol de narratieve mechanismen transportatie en identificatie spelen in de verwerking van *narratieve fear appeals* is nog niet duidelijk. Narratieve fear appeals kunnen gedefinieerd worden als angstaanjagende boodschappen in verhalende vorm, waarin individuen worden gepresenteerd die geconfronteerd zijn met een bepaalde dreiging en die dreiging hebben kunnen afwenden. In dit proefschrift staan narratieve fear appeals centraal. Ik wilde onderzoeken (1) hoe transportatie en identificatie gerelateerd zijn aan angst en andere emoties die narratieve fear appeals mogelijk oproepen, en (2) hoe deze narratieve mechanismen en de opgeroepen emoties gerelateerd zijn aan de overtuigingskracht van narratieve fear appeals.

Hoofdstuk 1. Algemene inleiding

In hoofdstuk 1 wordt de theoretische context van dit proefschrift gepresenteerd door eerder onderzoek naar narratieven, fear appeals en emoties te bespreken. Aan het eind van dit hoofdstuk worden de volgende onderzoeksvragen geformuleerd.

1. Hoe goed kunnen met het vaak geciteerde *Extended Parallel Process Model* (Witte, 1992) het verloop van het overtuigingsproces en de effecten van narratieve fear appeals worden voorspeld?
2. Wat is de rol van narratieve mechanismen (transportatie en identificatie) en emoties (angst en andere emoties) in de verwerking en de effecten van narratieve fear appeals?

3. Welke boodschapkenmerken kunnen de mechanismen beïnvloeden die ten grondslag liggen aan de verwerking en de uitkomsten van narratieve fear appeals?

Op deze onderzoeksvragen waren vijf empirische studies gericht. Die worden besproken in de hoofdstukken 2-6.

Hoofdstuk 2. Het evalueren van vier basisproposities van het EPPM

Het meest invloedrijke theoretische model dat is bedoeld om te verklaren en te voorspellen hoe angstaanjagende boodschappen worden verwerkt en welke effecten ze hebben, is waarschijnlijk het *Extended Parallel Process Model* (EPPM; Witte, 1992). Echter, niet alle proposities van het EPPM zijn expliciet getest, en wanneer proposities wel getest zijn, is er in lang niet alle gevallen eenduidige empirische steun voor gevonden (Popova, 2012). Om de relaties tussen de EPPM-variabelen te helpen verhelderen, zijn vier van de twaalf EPPM-proposities getest in een correlatieve studie. Deelnemers waren 116 vrouwelijke studenten. Zij kregen een narratieve fear appeal over borstkanker te lezen; vervolgens beantwoordden ze een aantal vragen over EPPM-variabelen als de ervaren ernst van de dreiging en de ingeschatte eigen vatbaarheid van de lezer voor die dreiging.

Mediatieanalyses lieten zien dat een groot deel van de relaties tussen de EPPM-concepten en de uitkomsten van fear appeals verschilden van wat het EPPM voorspelt: dreiging en intentie bleken niet aan elkaar gerelateerd te zijn, dreiging was geen mediërende variabele in het effect van angst op intentie, en angst beïnvloedde de zogenoemde *fear control*-reacties niet. De studieresultaten zetten vraagtekens bij de verklaringskracht van het EPPM en suggereren dat het EPPM niet zonder meer gebruikt kan worden om de werking van narratieve fear appeals te verklaren.

Hoofdstuk 3. Het onderzoeken van de verwerking van narratieve fear appeals

Dat in hoofdstuk 2 geen steun werd gevonden voor een groot deel van de relaties die het EPPM veronderstelt, laat zich misschien verklaren doordat in het EPPM geen rekening wordt gehouden met de narratieve kenmerken die een fear appeal kan hebben. In het onderzoek dat wordt gepresenteerd in hoofdstuk 3 zijn daarom de mechanismen bestudeerd die ten grondslag liggen aan de verwerking van narratieve fear appeals. Studenten ($N = 564$) lazen een persoonlijk verhaal van iemand die

geconfronteerd wordt met kanker (Studie 1: teelbalkanker; Studie 2: borstkanker; Studie 3: huidkanker). Na het verhaal volgden vragen over de mate van transportatie, identificatie, attitude en de intentie om een maandelijks zelfonderzoek uit te voeren, en over de emoties die deelnemers ervoeren tijdens het lezen.

Pad-analyses lieten zien dat transportatie en identificatie verschillende emoties oproepen: transportatie was positief gerelateerd aan angst, verdriet, verrassing en compassie, en identificatie had een positieve relatie met compassie. Van die emoties bleek alleen angst een significante voorspeller te zijn van de onderzochte gedragsintentie. Verhalende angstaanjagende boodschappen kunnen ontvangers echter ook overtuigen zonder de tussenkomst van emoties: transportatie bleek attitude en gedragsintentie direct te beïnvloeden. Samengenomen blijken identificatie en vooral transportatie belangrijke factoren in de verwerking van narratieve fear appeals.

Hoofdstuk 4. Het exploreren van de rol van gelijkenis in narratieve overtuiging

Omdat uit eerder onderzoek blijkt dat transportatie en identificatie een belangrijke rol spelen in de overtuigingskracht van narratieven (zie bijvoorbeeld Green & Brock, 2000; De Graaf, Hoeken, Sanders, & Beentjes, 2012), is het belangrijk om te achterhalen hoe transportatie en identificatie vergroot kunnen worden. Een optie is de hoofdpersoon van een verhaal zo te presenteren dat die lijkt op de lezers die de doelgroep van het verhaal vormen (Slater & Rouner, 2002). Empirisch onderzoek naar de effecten van manipulaties van gelijkenis op transportatie, identificatie, en overtuigingskracht van een verhaal laat tot nu toe echter tegenstrijdige resultaten zien (De Graaf, Sanders, & Hoeken, 2016). In twee experimenten werden daarom de effecten onderzocht van gemanipuleerde gelijkenis op identificatie, transportatie, en de persuasieve uitkomsten van narratieven. In Experiment 1 kregen vrouwelijke studenten ($N = 83$) een van twee versies van een verhaal over de ernstige gevolgen van borstkanker voorgelegd. In de ene versie was de hoofdpersoon een 22-jarige vrouwelijke student ('gelijke' conditie); in de andere versie was de hoofdpersoon een 59-jarige werkende vrouw ('niet-gelijkende' conditie). Na het lezen beantwoordden alle deelnemers vragen over de mate van transportatie, identificatie, emoties, attitude en intentie. Experiment 2 ($N = 62$) was een directe replicatie van Experiment 1, waar de meting van waargenomen gelijkenis nog aan toegevoegd werd.

In geen van beide experimenten leidden de twee tekstversies tot significante verschillen in identificatie, attitude, en intentie. Mediatie-analyses in Experiment 2 toonden aan dat de manipulatie van gelijkenis wel een indirect effect had op transportatie, identificatie, emoties en intentie: het verhaal met de gelijkende hoofdpersoon leidde tot een hogere waargenomen gelijkenis, wat op zijn beurt een positieve invloed had op transportatie, identificatie, compassie, verdriet, en intentie. Dit suggereert dat positieve effecten van manipulaties van gelijkenis alleen waarneembaar zijn wanneer ontvangers zich ook daadwerkelijk vinden lijken op de hoofdpersoon van het verhaal.

Hoofdstuk 5. Het onderzoeken van de rol van gelijkenis in narratieve overtuiging

Mogelijk zijn de effecten van gelijkenis sterker wanneer de manipulatie van gelijkenis relevant is voor het onderwerp van het verhaal (Hoeken, Kolthoff, & Sanders, 2016; Cohen, Weimann-Saks, & Mazor-Tregerman, 2017). In hoofdstuk 5 wordt een experiment besproken waarin de leeftijd en het geslacht van de hoofdpersoon werden gemanipuleerd: kenmerken die relevant waren voor de onderwerpen van de verhaalversies die hier werden gebruikt (borstkanker, een ziekte die vooral voorkomt bij oudere vrouwen, en teelbalkanker, dat vooral voorkomt bij jongere mannen). Er waren vier versies van het verhaal met vier verschillende hoofdpersonen: een 22-jarige vrouwelijke student, een 22-jarige mannelijke student, een 50-jarige werkende moeder, en een 50-jarige werkende vader. Er waren alles bijeen 528 deelnemers: deels vrouwen en deels mannen, deels studenten (tussen de 18 en 30 jaar) en deels oudere volwassenen (boven de 40 jaar). Na het lezen van het verhaal beantwoordden de deelnemers vragen over onder meer transportatie en identificatie, en over hun intentie om een maandelijks zelfonderzoek uit te voeren, en om geld aan een kankerfonds te doneren.

Voor de oudere volwassenen bleek noch geslacht noch leeftijd van de hoofdpersoon effect te hebben op transportatie of identificatie, en ook niet op overtuigingskracht. Bij de studenten die aan het onderzoek deelnamen, bleek een verhaal met een leeftijdgenoot als hoofdpersoon voor meer transportatie en identificatie te zorgen dan een verhaal met een oudere hoofdpersoon. Ook was bij de studenten de intentie om geld te doneren sterker als de hoofdpersoon ongeveer even oud was als zichzelf. Voor geslacht van de hoofdpersoon werd geen effect gevonden. Wat betreft de onderliggende mechanismen laten de resultaten van *structural equation modeling* zien dat het concept 'waargenomen gelijkenis' een

relevante toevoeging is aan de modellen van narratieve overtuiging, aangezien waargenomen gelijkenis significant gerelateerd was aan transportatie en identificatie. Die voorspelden op hun beurt attitude en intentie, zowel direct - in het geval van transportatie - als indirect, via compassie. Concluderend: gemanipuleerde en waargenomen gelijkenis zijn van belang voor de overtuigingskracht van narratieven.

Hoofdstuk 6. Het exploreren van de verwerking van narratieve, visuele rookwaarschuwingen

Terwijl in de hoofdstukken 3-5 gebruik werd gemaakt van een geschreven narratieve fear appeal, was in het onderzoek dat ik in hoofdstuk 6 bespreek de aandacht gericht op *visuele* narratieve fear appeals. Centraal stonden hier anti-rookwaarschuwingen waarin een afbeelding wordt getoond van mensen die zich in een specifieke context bevinden. Onderzocht werd of zulke afbeeldingen inderdaad waargenomen worden als een mini-verhaal en of ze dezelfde mechanismen oproepen als geschreven narratieven. In een experiment met een binnenproefpersoon-ontwerp ($N = 200$) werden twee visuele narratieve fear appeals op sigarettenpakjes vergeleken met twee ook visuele, maar non-narratieve fear appeals. Daarop waren lichaamsdelen (zwarte longen of een smerig gebit) afgebeeld. Elke deelnemende student werd blootgesteld aan een visuele narratieve fear appeal en een visuele non-narratieve fear appeal. Na elke fear appeal beantwoordden de deelnemers vragen over narratieve perceptie, transportatie, identificatie, emoties, en waargenomen effectiviteit.

De visuele narratieve fear appeals werden, zoals verwacht, waargenomen als meer narratief dan de non-narratieve varianten. Daarnaast bleken de visuele narratieve fear appeals meer transportatie, angst, verdriet, compassie en angst te veroorzaken dan de non-narratieve varianten. Wat betreft de onderliggende mechanismen bleek de verwerking van de visuele narratieve fear appeals vergelijkbaar met de verwerking van narratieve fear appeals in de vorm van een tekst. Gevonden werd dat transportatie - en nu ook identificatie - een direct effect hadden op waargenomen effectiviteit, en ook indirect, via verdriet. Een opmerkelijk resultaat was dat ook een rol van transportatie werd gevonden bij de verwerking van de visuele non-narratieve fear appeals. Hier was transportatie zowel direct als indirect, via walging, gerelateerd aan de waargenomen effectiviteit van de waarschuwingen.

Hoofdstuk 7. Algemene discussie

In dit hoofdstuk bespreek ik de theoretische en praktische implicaties van de in de voorafgaande hoofdstukken gerapporteerde resultaten. Het onderzoek in deze dissertatie laat zien dat vooral transportatie een belangrijke factor is in de verwerking van narratieve fear appeals: transportatie bleek zowel directe als indirecte effecten te hebben op overtuigingskracht. Het indirecte effect van transportatie op gedragsintentie wijst op een emotionele route, aangezien emoties dit effect medieerden. Hierbij bleken angst, verdriet, en compassie de gedragsintenties te beïnvloeden, hoewel die invloed per studie verschilde. Het directe effect van transportatie op intentie biedt steun voor een meer cognitieve route van overtuiging (cf. Dunlop, Wakefield, & Kashima, 2009). Een andere variabele die belangrijk kan zijn voor het overtuigingsproces van narratieve fear appeals is waargenomen gelijkenis. Gevonden werd dat waargenomen gelijkenis de narratieve mechanismen die ten grondslag liggen aan de overtuigingskracht van verhalen positief beïnvloedde.

Mijn advies aan gezondheidsvoorlichters is om bij het ontwerpen van gezondheidsboodschappen steeds de optie te overwegen om verhalen te gebruiken, en daarbij dan rekening te houden met de leeftijd van de doelgroep. Verschillende leeftijdsgroepen blijken anders te reageren op hun gelijkenis met de hoofdpersoon van een verhaal. Wanneer voorlichters jonge mensen willen bereiken, doen ze er verstandig aan om vooral gelijkenis in leeftijd te benadrukken. Wanneer het praktisch onhandig of onmogelijk is om boodschappen toe te spitsen op één doelgroep (Gavaruzzi et al., 2018), verdient het de voorkeur om een jonge hoofdpersoon te presenteren. Het kan voldoende zijn om één goedgekozen narratieve afbeelding te gebruiken. Ontvangers blijken in staat om ook in één statische afbeelding een mini-verhaal te zien, en met zulke afbeeldingen kunnen dezelfde narratieve processen worden opgeroepen als met geschreven verhalen.

Concluderend: voor de overtuigingskracht van narratieve fear appeals in de gezondheidscommunicatie is vooral transportatie direct of indirect van belang. Ik hoop dat ik met de theoretische en praktische consequenties die verbonden kunnen worden aan deze en andere uitkomsten van dit onderzoek een bijdrage heb kunnen leveren aan effectievere gezondheidscommunicatie.

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Curriculum Vitae

Joëlle Ooms werd geboren op 4 januari 1989 in Berkel en Rodenrijs. Ze behaalde haar VWO-diploma op rsg de Borgen in Leek, waarna ze Communicatie- en Informatiewetenschappen (CIW) studeerde aan de Rijksuniversiteit Groningen (RUG). Haar masterscriptie schreef zij over de rol van tekstbegrip bij ouderen met voorkennis. In 2011 behaalde zij cum laude haar masterdiploma. Na werkervaring op gedaan te hebben als communicatieadviseur bij Hajema Communicatie en als tijdelijk docent bij de afdeling CIW, startte zij in 2013 als docent-promovendus bij de RUG. Ze zette haar onderwijstaken bij CIW voort en begon aan een promotieonderzoek bij het Center for Language and Cognition. Haar onderzoek richtte zich op de rol van transportatie, identificatie en emoties bij de verwerking van verhalende, angstaanjagende gezondheidsboodschappen. Sinds september 2018 werkt Joëlle als docent op het gebied van communicatie, onderzoeks- en schrijfvaardigheden bij het Instituut voor Bedrijfskunde van de Hanzehogeschool Groningen.

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Center for Language and Cognition Groningen (CLCG)

P.O. Box 716

9700 AS Groningen

The Netherlands