# Risk Versus Planning Health Narratives Targeting Dutch Truck Drivers: Obtaining Impact Via Different Routes?

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To understand when and how narrative health interventions can be effective, insights are needed into the processes that are responsible for this impact. In this study, narrative content (risk perception–focused vs. planning strategies–focused) as well as narrative medium (written vs. auditory) were manipulated to examine whether these factors influence intentions to exercise and, if so, whether this effect is obtained via different routes. The intervention's target group consisted of 120 Dutch truck drivers who were randomly assigned to one of four experimental conditions. Whereas narrative medium did not yield different effects, narrative content did. Both risk-oriented and planning-oriented narratives yielded positive intentions among the drivers, but they did so via different routes: The risk narrative yielded stronger negative emotions, subsequently influencing intentions, while the planning narrative effectively stimulated concrete action strategies, which also yielded a more positive intention. These findings suggest that, to better understand how narratives can be employed as effective health interventions, attention should be paid to their content.

*Keywords: narrative persuasion, medium, narrative content, workplace health promotion, truck drivers*

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Various scholars have argued that narrative health interventions hold great promise for influencing people's health behavior (e.g., Green, 2006; Kreuter et al., 2007; Moyer-Gusé, 2008). Recent meta-analyses of studies on narrative interventions reveal that these interventions are indeed capable of influencing people's beliefs, attitudes, intentions, and behavior (Braddock & Dillard, 2016; Shen, Sheer, & Li, 2015). However, a systematic literature review shows that not every narrative health intervention is successful and that large variations exist in the plot, length, and medium of the narrative interventions (De Graaf, Sanders, & Hoeken, 2016). To understand when and how narrative health interventions can be effective in influencing people's health behavior, insights are needed into the processes that are responsible for this impact and how they are evoked and guided by features of the narrative as well as by the medium through which the narrative is presented.

This article presents a study in which narrative content and narrative medium were manipulated to assess the extent to which these factors influence people's intention to adopt a more active lifestyle and whether this effect is obtained via different routes. The intervention's target group consisted of Dutch truck drivers. The next section explains why truck drivers constitute a particularly interesting target group for studying narrative health interventions. We also discuss the extent to which differences in narrative content and medium can influence the intervention's impact, which leads to the study's hypotheses.

### Dutch Truck Drivers: A High-Risk, Underprivileged Occupational Group

Despite large-scale health promotion efforts to change Dutch truck drivers' lifestyle behaviors, statistics on their levels of overweight and absenteeism compare unfavorably to other occupational groups (Gezond Transport, 2013; STL, 2016). At present, 21% of Dutch truck drivers are obese (body mass index [BMI] $\geq$ 25 kg/m$^2$), compared with 13% of the overall workforce, and another 44% are overweight (BMI $\geq$ 30 kg/m$^2$; STL, 2016). Truck drivers with higher BMI are significantly more frequently and longer absent from work than truck drivers with lower BMI (Gezond Transport, 2013; Jans, Van den Heuvel, Swenne, Hildebrandt, & Bonger, 2007). Research also has revealed that Dutch truck drivers generally engage in unhealthy lifestyles: 19% are inactive (versus 12% of the overall workforce), and another 62% are semiactive; only 8% eat the daily-recommended intake of vegetables (versus 14%), and 15% eat the daily-recommended intake of fruits (versus 16%; STL, 2016).

In part, these unfavorable figures may be explained by the obduracy of the detrimental trucking work environment (Apostolopoulos, Sönmez, Shattell, Gonzales, & Fehrenbacher, 2013; Van der Beek, 2012). However, they also question the effectiveness of previous and ongoing health promotion materials. Current interventions typically are persuasive brochures that aim to motivate truck drivers to adopt healthier lifestyle behaviors by, for example, pointing out the desirable outcomes of the advocated behavior or the risks of the current, undesired behavior (Boeijinga, Hoeken, & Sanders, 2017). The argumentative nature of these brochures requires considerable cognitive skills to process their content thoroughly: For the argumentation to be effective, the reader must be able to identify what information serves as an argument; infer hidden premises; recognize what type of argument has been used to identify the relevant criteria for assessing the argument's quality; and, finally, apply these criteria to evaluate his or her own situation (Schellens & De Jong, 2004).

The cognitive demands posed by this type of health intervention may require higher health literacy skills than the target group possesses. In general, truck drivers have a relatively low level of education and low socioeconomic status, which generally corresponds with a lower health literacy level (Twickler et al., 2009; Van der Beek, 2012). Health literacy is defined as "the cognitive and social skills which determine the motivation and the ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (World Health Organization, 1998, p. 10). In general, truck drivers are at risk due to their harsh working conditions, while the health interventions that aim to empower them to deal with these conditions may be too demanding in relation to their needs and capacities.

### Health Promotion for Truck Drivers: The Promise of Narrative

Several scholars have suggested that narratives may be an effective genre in health communication (e.g., Green, 2006; Kreuter et al., 2007). Because narratives are essentially built around the experiences of specific people and depict a natural (experiential) event order (Labov & Waletzky, 1967), they represent a basic and universal form of communication. Humans are hardwired to process and comprehend such identifiable and chronological information as represented in narratives without prior education or training (Graesser, Olde, & Klettke, 2002; Mar, 2004). As such, narratives are accessible and attractive for a broad audience, including those with lower levels of education and lower health literacy skills (Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013). Therefore, it may be presumed that narrative health interventions will be more attractive and comprehensible to Dutch truck drivers than the current argumentative interventions.

Meta-analyses have shown that narratives can indeed be effective in influencing people's beliefs, attitudes, intentions, and behavior (Braddock & Dillard, 2016; Shen et al., 2015). Several models have been developed to explain this persuasive impact of narratives (e.g., Green & Brock, 2002; Moyer-Gusé, 2008; Slater & Rouner, 2002). These models focus mainly on the processes responsible for the impact of narratives. All share the assumption that, for a narrative to influence its audience, the audience should be involved in the story. The more involved the audience is, the more likely the impact will occur and the larger this impact is predicted to be. Narrative involvement can take the form of being an invisible witness to the story events (often referred to as *narrative presence* or *transportation*) or taking a specific character's perspective and adopting this character's goal (often referred to as *identification*; see Tal-Or & Cohen, 2010). The affective disposition theory (Raney, 2006; Zillmann & Cantor, 1976) asserts that the audience may experience positive emotions if the protagonist is successful in achieving his or her goal, but may feel sad when he or she fails. The more involved the audience becomes with the narrative, the less likely it is to be resistant to the narrative's persuasive subtext.

Ample empirical evidence supports these processes as mechanisms for narrative persuasion. In a meta-analysis, Van Laer, De Ruyter, Visconti, and Wetzels (2014) provide evidence for the importance of transportation. Several studies have found that identification with a character is important for stories to influence people's opinions and attitudes (e.g., De Graaf, Hoeken, Sanders, & Beentjes, 2012; Hoeken & Fikkers, 2014; Igartua & Vega Casanova, 2016). Emotions proved to be good predictors of the audience's attitudes (Busselle & Bilandzic, 2009; De Graaf, Hoeken, Sanders, & Beentjes, 2009; Hoeken & Sinkeldam, 2014). Finally, several studies have shown that whether the story is presented as true or as

fictitious does not make a significant difference for an attitude effect to occur (Appel & Maleckar, 2012; Green & Brock, 2000).

Narrative health interventions may constitute a promising tool to influence the health behavior of truck drivers. To make good on that promise, the narrative should be situated in a context that truck drivers perceive as realistic and authentic, because this will increase their level of involvement (Green, 2004). In addition, the narrative's protagonist should be someone the drivers can relate to and identify with. The emotions evoked by the narrative appear to play an important role as well. These emotions typically follow from the main character's vicissitudes and thus relate to the narrative's plot. The next section describes what the narrative should be about to positively influence the truck drivers' intentions regarding their lifestyle.

### Health Narratives for Truck Drivers: The Question of Plot

In-depth interviews (Boeijinga, Hoeken, & Sanders, 2016) revealed that Dutch truck drivers regard health as very important but also that they perceive a sense of relative good health by comparing their own condition to that of others who are in worse health (e.g., colleague truck drivers who had suffered from heart attack or knee malfunction). Such *downward social comparison* enables truck drivers to underestimate their own health risks, and thus to suppress the perceived need to change their lifestyle. Hence, a focus on *risk perception* appears to be promising. Narrative forms of risk communication have been found to be (more) effective in raising people's risk perception. Dillard, Fagerlin, Dal Cin, Zikmund-Fisher, and Ubel (2010), for example, discovered that a narrative message, compared with an educational message, increased perceived risk for colorectal cancer and screening intention. Similar findings have been described for risk perceptions about the intention to perform prevention behavior regarding hepatitis B (De Wit, Das, & Vet, 2008), influenza (Prati, Pietrantoni, & Zani, 2012), and sexually transmitted diseases (So & Nabi, 2013). A meta-analysis (De Hoog, Stroebe, & De Wit, 2007) has revealed that the subsequent feelings of vulnerability and potential loss arouse fear and other negative emotions, which in turn can operate as motivators.

Interviews with Dutch truck drivers also revealed that many would like to adopt a healthier lifestyle and have indeed, sometimes repeatedly, tried to do so. However, most attempts were thwarted by barriers within their work environment (e.g., irregular working hours and lack of exercise facilities) and personal environment (e.g., social expectations or obligations). These drivers thus have a gap between their intentions and actual behaviors. The Health Action Process Approach (HAPA; Schwarzer, 2008) accounts for such an intention–behavior gap by distinguishing between a preintentional motivation phase (leading to a behavioral intention) and a postintentional volitional phase (leading to actual health behavior). According to the HAPA, truck drivers in the volitional phase could benefit from interventions focusing on *planning strategies*. These would include specifying the when, where, and how of the intended action (*action planning*) as well as anticipating potential barriers and preparations for successful strategies to overcome them (*coping planning*). Because narrative plots typically involve characters overcoming obstacles in a quest for reaching their goal, the protagonist can function as a role model, showing the target audience what obstacles may arise and how to successfully navigate them, thereby evoking positive feelings and emotions (Raney, 2006; Zillmann & Cantor, 1976).

In summary, narrative health interventions have been shown to influence people's beliefs, attitudes, intentions, and behavior. In addition, several mechanisms that are responsible for this impact have been identified. Still, not every narrative intervention is effective, and the effectiveness may depend on, for instance, the content of the narrative. This study examines the impact of two narrative interventions on Dutch truck drivers' intention to exercise more. In the interviews, truck drivers noted a lack of willpower as the main obstacle to eating healthier, whereas they regarded working conditions and family pressure as obstacles for exercising more (Boeijinga et al., 2016). The study's findings thus offered more options for developing a narrative about dealing with obstacles preventing them from exercising more than from eating healthier.

The two developed narratives differed in their content: One focused on the negative consequences of an inactive lifestyle, and the other focused on effective ways to deal with obstacles when trying to put into action the intention to exercise more. Both stories could influence participants' intention to exercise more in a similar way, but the hypotheses are that they will do so along different routes.

*H1:     A risk perception–focused health narrative will increase Dutch truck drivers' level of perceived health risks and evoke negative emotions, leading to more positive intentions toward exercise.*

*H2:     A planning strategies–focused health narrative will increase Dutch truck drivers' level of action and coping planning strategies and evoke stronger positive emotions, leading to more positive intentions toward exercise.*

### The Question of Medium

Narratives can be delivered via different modalities—for instance, print, audio, or audiovisual (Hinyard & Kreuter, 2007). Although some studies demonstrate that message modality can affect message processing (e.g., Andreoli & Worchel, 1978; Booth-Butterfield & Gutowski, 1993) and possibly also message effectiveness (see Hinyard & Kreuter, 2007), little research has investigated the differential impact of narrative modality. In their study on breast cancer screening communication for Italian-speaking young women, Occa and Suggs (2016) compared didactic and narrative messages in a video or infographic format. They found that, for the narrative message, the video format had a more positive effect on attitudes and intentions. However, similar studies (Luna Nevarez, 2013; Stitt & Nabi, 2005; Winterbottom, Bekker, Conner, & Mooney, 2012) failed to find these differences in effect of modality. In three studies, Braverman (2008) compared the effect of radio versus printed message presentations of narrative versus argumentative persuasive messages. The results revealed that the print modality was more effective for argumentative messages, whereas the audio version was more effective for narrative messages (see also Brosius & Bathelt, 1994).

These studies have been carried out mainly among highly educated target groups. For Dutch truck drivers, both written and audio formats appear to have great potential, because a survey revealed that nine of 10 truck drivers are habitual readers of trucking magazines and that all consistently listen to the radio during work ("Lezen, Luisteren, Kijken," 2013). For people with lower levels of education and health literacy, a spoken message may be easier to process than a written one (Mayer, 2003; Mayer &

Moreno, 2003; Wilson & Wolf, 2009). Because spoken messages are generally more vivid than written ones, the audio format may also be more engaging than the written one (Brosius & Bathelt, 1994). In sum, the level of narrative involvement may be higher with audio stories than with written stories. Therefore, our third hypothesis is as follows:

H3:      *Audio narratives lead to a stronger feeling of narrative involvement than written narratives, regardless of the narrative's content.*

If this hypothesis is confirmed, then the impact as predicted in H1 and H2 for the audio narratives should be stronger than that for the written narratives.

## Method

### Materials

The personal accounts of Dutch truck drivers collected in a previous study (Boeijinga et al., 2016) were used as a starting point for constructing two realistic narrative health interventions. Key quotes and comments were extracted from the drivers' personal stories to develop a risk perception–focused narrative and a planning strategies–focused narrative.

The main character was the same in both narratives, and was introduced as follows: "René Louwisse, 41 years of age. Father of Tim (14) and husband of Anja (38). As a truck driver he hits the road in the early morning." The narrative focusing on risk perception describes how René suddenly experiences a pain in his chest while unloading his truck. At first he does not think much of it and ignores the pain because he is already behind schedule. During a visit to his doctor the next day, he is immediately referred to the hospital for further assessment. It turns out that an artery near his heart is clogged and requires urgent surgery; the subsequent operation is successful. The perceived risk in this narrative was realistic in that it was based on an authentic storyline obtained from interviews in a previous study (Boeijinga et al., 2016); cases of heart and cardiovascular diseases were frequently mentioned in truck drivers' personal stories.

The narrative focusing on planning strategies depicted a trucker who reflects on his road to a healthier lifestyle: Seeing his son's embarrassment about his (René's) poor physical shape, René decides to change his lifestyle—which turns out to be easier said than done. The first bike ride to work is not much of a success; he arrives at his truck sweaty and red-faced. The rain is not helping his training schedule either, and the couch is tempting after a long day on the truck. Nevertheless, René finds ways to navigate past these challenges and establishes healthier behaviors. Again, the planning strategies in this narrative were realistic in that they were based on authentic strategies obtained in interviews with the target group (Boeijinga et al., 2016).

Thus, in the risk narrative, the main character was shown carrying out the unhealthy behavior that was discouraged (i.e., an inactive lifestyle), whereas in the planning narrative, he was shown to circumvent obstacles in striving for healthier behavior (i.e., healthy exercise behaviors). Both versions

were directly linked with exercise, but in different ways: In the risk narrative, René functions as a negative role model experiencing negative consequences of a lack of exercise, whereas in the planning narrative, he functions as a positive role model of how to put the intention to exercise into action. Motivated by the target group's input, the planning narrative focused on action and coping planning strategies; target group members indicated that they experience barriers within their work and personal environment, thwarting their attempts to improve their lifestyles. The planning narrative therefore specifically described René's transition from unhealthy to healthy behavior. According to Bandura (2001), such an approach may be especially beneficial.

In accordance with previous effect findings on narrative persuasion (De Graaf et al., 2016; Nan, Dahlstrom, Richards, & Rangarajan, 2015), both narratives were written from the first-person perspective and were comparable in length and structure. The narratives were checked for evidence-based descriptions by health scientists and were pretested with target audience members for their perceived legibility, authenticity, and attractiveness. Based on the feedback received, minor text changes were made. The final versions of the narratives consisted of about 840 words (the risk perception–focused narrative was 852 words; the planning strategies–focused narrative was 825 words). The readability was also similar for both narratives (the Gunning Fog Index for the risk perception–focused narrative was 7.49; for the planning strategies–focused narrative, it was 7.13). Audio versions of the narratives were created, selecting a male voice that Dutch truck drivers identified as most representative out of three pretested options. The recorded narratives were shorter than five minutes (the risk perception–focused narrative was 4:50 minutes; the planning strategies–focused narrative was 4:37 minutes).

### Participants, Design, and Procedure

The study was conducted with real truck drivers in their own working circumstances. Once ethical approval was obtained, drivers were approached and invited to participate in the study. The recruitment took place at trucking companies and truck stops. The sample consisted of 120 Dutch truck drivers (98.3% male, 1.7% female). Slightly more short-haul (54.2%) than long-haul truck drivers took part in the study. On average, the participants had 21 years of trucking work experience. Most of the drivers were married or living with a partner (71.7%) and had children (68.3%). Their ages varied between 19 and 67 years, with an average age of 43.

The effects of each narrative were tested using a 2 (risk perception–focused vs. planning strategies–focused) × 2 (written vs. audio) between-subjects design. The participants were randomly assigned to one of the four conditions: (1) written risk perception–focused narrative ($n = 31$), (2) auditory risk perception–focused narrative ($n = 29$), (3) written planning strategies–focused narrative ($n = 32$), or (4) auditory planning strategies–focused narrative ($n = 28$).

Participants were asked to individually complete the questionnaire after either reading or listening to one of the story versions. For the audio version, headphones were used. It was explained that there were no wrong answers; anonymity was assured, as was the right to stop at any time without explanation. The experiment took about 20 to 30 minutes to complete. At the end of the questionnaire,

each participant was debriefed about the nature and purpose of the research and was compensated for his or her participation with a voucher worth €7.50.

### Questionnaire

5-point Likert scales were used ranging from 1 (*strongly agree*) to 5 (*strongly disagree*), because this scale length and order proved the most intuitive to the participants in a pretest.[2] The introduction to this article discussed several mechanisms of narrative persuasion; the questionnaire measured the most important variables related to these mechanisms using 5-point scales for all variables.

*Measures: Narrative*

The experience of *narrative involvement* was measured with 17 items of a (Dutch) questionnaire developed by De Graaf et al. (2012) that had been used extensively in previous studies. Involvement was measured on three dimensions. *Attentional focus* was the extent to which the participants' attention was focused on the narrative, measured by four items (e.g., "During reading/listening, I was fully concentrated on the story," "I did not notice things happening around me"; α = .74). *Narrative presence* was the extent to which participants felt present at the narrative events, measured by seven items (e.g., "I was in the world described in the story," "I felt like being present at the story events"; α = .81). *Identification* was the extent to which participants take on the role of a character in the narrative, measured by six items (e.g., "I imagined what it would be like to be in René's position," "I had the feeling that I went through what René was experiencing"; α = .85).

For a narrative to have an impact on real-world beliefs, it needs to be perceived as realistic (e.g., Busselle, Ryabovolova, & Wilson, 2004). The extent to which the truck drivers perceived the main character as "one of them" was measured through *perceived similarity*, employing a scale of four items developed by McCroskey, Richmond, and Daly (1975; e.g., "René thinks like me," "René and I are alike"; α = .89). In addition, the narratives' *perceived realism* was measured using four 5-point scale items adopted from Canter, Grieve, Nicola, and Benneworth (2003; e.g., "I found this story unbelievable or believable, illogical or logical, not truthful or truthful"; α = .84). Similarly, the narratives' *perceived intelligibility* was measured using two items (e.g., "I found this story not understandable or understandable"; α = .95).

Researchers also acknowledge the importance of emotions for narrative impact (e.g., Green & Brock, 2000; McQueen, Kreuter, Kalesan, & Alcaraz, 2011; Murphy et al., 2013; Murphy, Frank, Moran, & Patnoe-Woodley, 2011). Hence, the *emotional responses* to the narrative were measured by six 5-point scale items adopted from Murphy et al. (2013), covering the six basic emotions, categorized into one positive emotion—happiness (i.e., "The story about René made me feel happy")—and five negative emotions: anger, sadness, disgust, surprise, and fear (α = .84).

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[2] During data analysis, the scale was recoded for all variables so that a higher score indicates a more positive response.

To measure the extent to which participants feel reactance toward the narrative intervention (*perceived freedom threat*), eight items were included—four measuring *cognitive responses* following Dillard and Shen (2005; e.g., "The story tried to manipulate me," "The story threatened my freedom to choose"; α = .75) and four measuring *affective responses*, as validated in previous studies: irritated, angry, annoyed, and aggravated (Dillard & Peck, 2000; Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996; e.g., "The story about René made me feel irritated"; α = .92).

Finally, the *enjoyment of reading/listening* to the narrative was measured by a five-item scale developed by Hartmann and Vorderer (2010; e.g., "I found the story about René: a waste of time, interesting, boring"; α = .78).

*Measures: Exercise Behavior*

To assess the participants' attitudes and behaviors with respect to exercise, the constructs of Schwarzer's (2008) HAPA were adapted to the audience and research context. The participants' *intention* toward exercising (more) was measured by four items adopted from Renner and Schwarzer (2003; e.g., "I intend to live a healthier life in the coming weeks and months," "I intend to exercise [more] in the coming weeks and months"; α = .86). *Risk perception* was measured by four items (e.g., "Compared to an average person of my sex and age, my chances of getting a cardiovascular disease are: much above average or much below average"; α = .82). *Outcome expectancies*—the expected positive outcomes of exercising—were measured using 10 items (e.g., "If I exercise more often, I will simply feel better afterward," "Other people will appreciate my willpower"). After removing one item, the reliability of the scale was good (α = .90). The participants' *action self-efficacy*—their beliefs about their ability to exercise—was measured by seven items (e.g., "I am sure I can start exercising [more], even if the planning for this is very laborious," "even if I have to push myself"; α = .85). *Planning strategies* were measured using nine items. In line with the HAPA (Schwarzer, 2008), a distinction was made between *action planning*, measured by five items (e.g., "I already have concrete plans when, where, how to exercise [more]"; α = .94), and *coping planning*, measured by four items (e.g., "I already have concrete plans for what to do if I miss an exercise session," "for how to deal with relapses"; α = .86).

*Self-ratings of health* were measured by three items of the HAPA questionnaire (e.g., "On the whole, I am satisfied with my physical condition"; α = .80). Finally, participants' level of *involvement with exercise* was measured by four items of the issue involvement scale developed by Wegman (1994; e.g., "How important is your physical condition to you? Not at all or very much"; α = .75).

**Results**

First, a two-way multivariate analysis of variance (MANOVA; narrative content, narrative medium) was conducted to assess whether there were any differences between the conditions with respect to self-perceived health, involvement with exercising, and age. No differences were found (*p* > .27).

Next, a similar two-way MANOVA was conducted to assess whether narrative content (risk perception, planning strategies) and narrative medium (written, auditory) influenced the narrative experience (see Table 1). H1 and H2 predicted an effect of narrative content for negative and positive emotions. There was indeed a significant main effect of narrative content, Wilks's $\lambda$ = .684, $F(11, 106)$ = 4.46, $p < .001$, $\eta^2$ = .316. Subsequent univariate analyses, employing the Holm-Bonferroni method to control for the family-wise error rate, revealed significant effects for the reported emotions: Participants who had read or listened to the planning strategies–focused narrative reported more positive emotions ($M$ = 3.12, $SD$ = 0.69) than those who had been exposed to the risk perception–focused narrative ($M$ = 2.45, $SD$ = 0.77), $F(1, 116)$ = 24.71, $p < .001$, $\eta^2$ = .176. The opposite pattern was obtained for negative emotions: They were higher among participants who had read or listened to the risk perception–focused narrative ($M$ = 2.49, $SD$ = 0.56) than among those who were exposed to the planning strategies–focused narrative ($M$ = 2.24, $SD$ = 0.66), $F(1, 116)$ = 4.71, $p = .032$, $\eta^2$ = .039. For the other dependent variables, a main effect of narrative content was not obtained ($p > .10$). Hypothesis 3 predicted a main effect of narrative medium on narrative involvement. However, there was no main effect of narrative medium, Wilks's $\lambda$ = .876, $F(11, 106)$ = 1.365, $p = .20$, nor did narrative medium interact with narrative content, Wilks's $\lambda$ = .862, $F(11, 106)$ = 1.545, $p = .124$.

**Table 1. Means (and Standard Deviations) for the Dependent Variables on Narrative Experience as a Function of the Narrative Content and Narrative Medium (After Recoding, 1 = Negative, 5 = Positive).**

|  | Risk perception | | Planning strategies | |
| --- | --- | --- | --- | --- |
|  | Written | Auditory | Written | Auditory |
| Positive emotion | 2.55 (0.81) | 2.34 (0.72) | 3.22 (0.66) | 3.00 (0.72) |
| Negative emotions | 2.59 (0.61) | 2.38 (0.50) | 2.26 (0.62) | 2.22 (0.72) |
| Attentional focus | 3.63 (0.50) | 3.53 (0.63) | 3.42 (0.67) | 3.54 (0.44) |
| Narrative presence | 3.46 (0.45) | 3.30 (0.57) | 3.49 (0.47) | 3.36 (0.58) |
| Identification | 3.33 (0.61) | 3.09 (0.60) | 3.23 (0.63) | 3.31 (0.66) |
| Perceived similarity | 3.20 (0.93) | 3.01 (0.83) | 2.98 (0.83) | 3.09 (0.82) |
| Perceived realism | 4.41 (0.56) | 4.23 (0.63) | 4.19 (0.72) | 4.21 (0.77) |
| Perceived intelligibility | 4.35 (0.85) | 4.66 (0.61) | 4.17 (1.11) | 4.30 (0.86) |
| Cognitive reactance | 2.90 (0.64) | 2.24 (0.71) | 2.69 (0.70) | 2.84 (0.74) |
| Affective reactance | 2.31 (0.73) | 1.94 (0.81) | 1.96 (0.70) | 2.01 (0.88) |
| Enjoyment of reading/listening | 3.41 (0.49) | 3.41 (0.41) | 3.49 (0.57) | 3.41 (0.69) |

To further test the hypotheses, the HAPA variables were analyzed using a two-way MANOVA (see Table 2). There was no main effect of narrative medium, Wilks's $\lambda$ = .931, $F(6, 111)$ = 1.38, $p = .23$, nor an interaction between narrative medium and narrative content, Wilks's $\lambda$ = .959, $F(6, 111)$ = 0.80, $p = .57$. The main effect of narrative content was significant, Wilks's $\lambda$ = .880, $F(6, 111)$ = 2.52, $p = .025$, $\eta^2$ = .120. Subsequent univariate analyses were conducted. H1 and H2 predicted that the risk narrative would lead to a higher risk perception, whereas the planning narrative would lead to higher action and

coping planning scores. Only the prediction for action planning was confirmed: The action planning scores were higher after reading or listening to the planning narrative compared to the risk narrative ($M = 3.34$, $SD = 0.77$ versus $M = 2.90$, $SD = 0.95$), $F(1, 116) = 8.23$, $p = .005$, $\eta^2 = .066$; no effects were found for risk perception, $F(1, 116) < 1$, and coping planning, $F(1, 116) = 1.68$, $p = .29$. There was an unpredicted effect that reading or listening to the planning narrative yielded more positive outcome expectancies ($M = 3.67$, $SD = 0.59$ versus $M = 3.34$, $SD = 0.71$), $F(1, 116) = 7.90$, $p = .006$, $\eta^2 = .064$. The effect that the planning narrative yielded higher intention scores was not significant ($M = 3.06$, $SD = 0.62$ versus $M = 2.74$, $SD = 0.86$), $F(1, 116) = 5.53$, $p = .020$, $\eta^2 = .046$, given that as a result of applying the Holm-Bonferroni correction to correct for multiple comparisons, the alpha against it was tested was .0167.

**Table 2. Means (and Standard Deviations) for the Dependent HAPA Variables on Exercise Behavior as a Function of the Narrative Content and Narrative Medium (After Recoding, 1 = Negative, 5 = Positive).**

|  | Risk perception | | Planning strategies | |
|---|---|---|---|---|
|  | Written | Auditory | Written | Auditory |
| Intention | 2.90 (0.79) | 2.57 (0.91) | 3.08 (0.60) | 3.04 (0.66) |
| Risk perception | 2.87 (0.59) | 2.98 (0.51) | 2.77 (0.88) | 3.06 (0.54) |
| Action planning | 3.07 (0.75) | 2.72 (1.10) | 3.28 (0.71) | 3.42 (0.84) |
| Coping planning | 3.41 (0.66) | 3.22 (0.94) | 3.57 (0.46) | 3.39 (0.72) |
| Outcome expectancies | 3.33 (0.70) | 3.34 (0.74) | 3.59 (0.70) | 3.76 (0.42) |
| Action self-efficacy | 3.37 (0.63) | 3.15 (0.78) | 3.39 (0.65) | 3.38 (0.52) |

This study asks whether narrative health interventions can influence people's intention to exercise more through different processes. To this end, a multiple mediator analysis employing Hayes's (2013) PROCESS macro (model 4; 10,000 bootstraps, 95% confidence interval) was conducted with narrative content (0 = risk perception, 1 = planning) as the independent variable; intention as the dependent variable; and action planning, coping planning, outcome expectancies, self-efficacy, risk perception, positive emotion, and negative emotions as potential mediators while controlling for all other variables. Figure 1 illustrates the results of the analysis. Only action planning and negative emotions served as mediators of the effect of narrative content on intention. The negative emotions evoked by the risk perception narrative yielded a more positive intention, whereas the same held for the higher level of action planning evoked by the planning narrative.
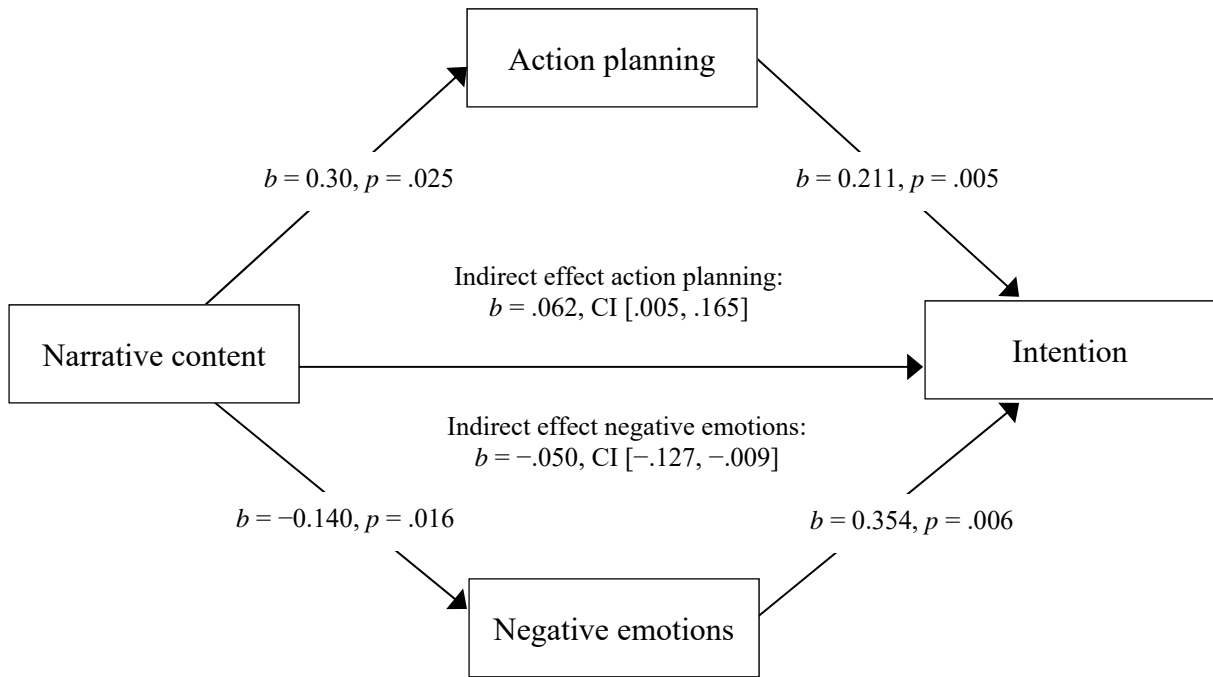
*Figure 1. Mediation analysis of the effect of narrative content on intention.*

## Discussion

This study developed and tested a narrative health intervention for Dutch truck drivers. Narrative content (risk perception–focused vs. planning strategies–focused) and narrative medium (written vs. auditory) were manipulated to assess the extent to which these factors influence the drivers' intention to adopt a more active lifestyle and, if so, whether this effect is obtained via different routes.

First, whether the narrative was presented in written or in auditory form made no difference—neither for the processing of the narrative nor for the exercise-related determinants. We had hypothesized that the auditory form would be easier to process than the written version because of the participants' supposedly lower health literacy level. Possibly, only truck drivers whose literacy level allowed them to feel confident that they would be able to fill out a questionnaire took part in the study, whereas those who did not feel confident refrained from participating. Still, the educational level of the participants in this study was considerably lower than that of the typical undergraduate student sample: More than 60% of the participants had completed no more than primary school, prevocational school, or middle school, implying that they ended their school career around age 16. As few as three participants had acquired an applied university degree, whereas none had completed an academic program. Yet the audio version and the written version were equally effective. These findings are in line with Braddock and Dillard (2016),

who did not find any main effects of medium in their meta-analysis. The explanation for this finding may be that, in the case of an engaging narrative, the medium of delivery is not important.

Second, whereas the two narrative interventions did not yield a difference in drivers' intentions to exercise more, they did influence the determinants of this intention in different ways. Not confirmed was the prediction that the narrative about the truck driver suffering from a heart disease would result in higher risk perceptions compared to the narrative about the truck driver who put into action his intention to exercise more. This may be the result of the strategy employed by truck drivers to perceive their own health as good by comparing themselves with those who are worse off, such as the truck driver in the story (Boeijinga et al., 2016). However, it did not prevent them from experiencing more negative emotions compared to the planning narrative. The planning narrative led to higher scores on action planning, but not on coping planning. However, action and coping planning are closely related; the anticipation of possible barriers and the generation of coping strategies demand the specification of the when, where, and how. In other words, coping planning builds on the specifics of the intended behavior, and thereby implies action planning (Schwarzer, 2008). The planning narrative also yielded stronger positive emotions and more positive outcome expectancies. The latter effect may have been caused by the main character expressing satisfaction with the results of his new lifestyle (e.g., "being happy with the lifestyle changes," "feeling stronger and fitter").

The mediation analysis revealed an interesting picture. Controlling for a large number of variables that have been identified as potential mechanisms of, or preconditions for, narrative persuasion, the results show that the similar intention scores for the two narrative interventions are the results of different processes. The risk perception–focused narrative led to a more positive intention through evoking more negative emotions, whereas the planning strategies–focused narrative did so by strengthening truck drivers' action planning. From a theoretical point of view, this is an important finding. It shows that for a full understanding of how narrative persuasion works, the content of the narrative has to be taken into account. It is the content that evokes particular emotions and influences particular behavioral determinants. Relating the plot of a narrative to the mechanisms underlying narrative impact will be an important next step in unraveling when and how narrative health interventions work.

From a practical point of view, the results are relevant as well. While the impact of the narratives is the same regardless of their content, their impact could be increased if the narrative intervention is tailored to the stage of change truck drivers find themselves in. According to the HAPA model (Schwarzer, 2008), people who do not perform the advocated behavior may fail to do so for different reasons. Some people are not convinced that the advocated behavior is indeed more desirable than their current behavior; these so-called *nonintenders* are thus in need of motivation to change their lifestyle. The second group already has the intention to adopt the advocated lifestyle but fails to put this intention into action; these *intenders* need help in overcoming the intention–behavior gap. In the study with Dutch truck drivers, nonintenders and intenders were presumably both present but undistinguished (Boeijinga et al., 2016). If the nonintenders and the intenders could be identified, then the risk perception story could be presented to the former group, while the planning narrative could be presented to the latter group, presumably leading to stronger effects for both groups.

There are several limitations to this study. First, participation was voluntary and the ultimate sample constitutes a convenience sample. Still, the sample of real truck drivers in this study is a welcome change from frequently encountered undergraduate student samples. Second, effects of the health narrative interventions were measured immediately after exposure. Although it is possible that the results will become stronger (Appel & Richter, 2007), it is not known whether this would be the case for these effects.

## Conclusion

Narrative provides a promising, alternative approach to health promotion targeting truck drivers. Whereas the narrative's medium (written or auditory) did not appear to play a role, the narrative's content did make a difference. Both risk-oriented and planning-oriented narratives yielded positive intentions in a group of Dutch truck drivers, but via different routes. The impact of these different narratives could be even stronger when tailored to the target audience's particular stage of behavior change if the planning strategies–focused narrative could be communicated to intenders only, and the risk perception–focused narrative could be communicated to nonintenders only. Such a tailoring approach holds the promise of successful narrative health interventions for this highly strained and underprivileged target group.

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