Chapter 2. Differential Effects of Self-Affirmation in Persuasion: The Role of Value-Involvement Versus Outcome-Involvement\(^1\)

The aim of most health promotion campaigns is to change people’s perceptions of a specific unhealthy behavior with the ultimate aim of changing their behavior. In order to motivate people to adopt healthy lifestyles, health educators present them with information stressing an individual’s vulnerability to a health risk, the severity of this risk, or both. This message is then followed by a recommendation in which a solution to the health risk is presented. Being reminded of the negative self-inflicted health risks may induce the conclusion that one’s actions are inconsistent and inadequate. This psychological state can be conceptualized as a self-threat (Dijkstra & Buunk, 2008; Steele, 1988; Stone & Cooper, 2001). This undesired state may motivate people to process the threatening information defensively (e.g., Kunda, 1987; Liberman & Chaiken, 1992). Self-affirmation procedures can influence this reaction to self-threatening information. It is unclear, however, under what terms a self-affirmation procedure enhances the persuasive impact of the message. The present research aims at specifying the conditions that determine whether and when self-affirmation leads to less persuasion or more persuasion. The central idea is that the type of involvement (value versus outcome) and level of involvement (weak versus strong) in the topic of the persuasive message determine whether self-affirmation has a moderating effect.

Self-Affirmation Procedures and Persuasion

Self-affirmation involves thinking about one’s “sustaining valued self-images” (Steele, 1988, p. 291). Such self-affirmations refer to engaging in activities that make salient important values unconnected with the threatening event, or reflecting on important aspects of one’s life irrelevant to the threat (McQueen & Klein, 2006). For example, participants are provided with positive feedback on an important skill (Cohen, Aronson, & Steele, 2000). According to Steele (1988), people are motivated to maintain a self-image that is moral, adaptive, and capable. This motive is activated by threatening health messages. One way to maintain that positive self-image is by processing the threatening information in a defensive manner. Research has shown that a self-affirmation procedure can reduce the need to respond
defensively (e.g., Harris & Napper, 2005). Self-affirmation procedures make people focus on domains of self-integrity unrelated to the threat, making them realize that their self-worth is not determined by the evaluative implications of the immediate situation. This results in a more open approach to self-threatening information and less need to distort or reconstruct the threatening information (e.g., Sherman & Cohen, 2002, 2006). Thus, self-affirmation procedures provide people with the strength to face up to what the message means for them affectively (Harris & Napper, 2005).

The main focus of self-affirmation research is on showing the positive effects of self-affirmation on persuasion (e.g., Sherman & Cohen, 2006). For example, Harris and Napper (2005) showed that self-affirmation leads to a higher intention to comply with the recommended alcohol consumption. However, few theoretical ideas or studies have concentrated explicitly on the possible ineffectiveness of self-affirmation in the domain of health (Galinsky, Stone, & Cooper, 2000). This is striking because there are clear indications that self-affirmation does not always enhance persuasion. Some study findings have shown that self-affirmation increases defensive responses to health threats (Boney-McCoy, Gibbons, & Gerrard, 1999) and decreases intentions to act according to recommendations (Reed & Aspinwall, 1998). In addition, some studies have shown that self-affirmation can also have no influence at all on persuasion. For example, Fry and Prentice-Dunn (2005) found no effect at all of the self-affirmation procedure on intention to adopt breast self-examination as a monthly habit. In addition, Dillard, McCaul, and Magnan (2005) showed that a self-affirmation procedure did not lead to an increased acceptance of risk information for smokers. Thus, it can not be said that self-affirmation always leads to more persuasion.

In sum, self-affirmation can have divergent effects. In unraveling these effects, we take a closer look at the role of involvement in the topic of persuasion. Previous research has shown that involvement in the topic of persuasion determines whether or not information is processed defensively (e.g., Ditto, Scepansky, Munro, Apanovitch, & Lockhart, 1998; Kunda, 1987; Morris & Swann, 1996). Because self-
affirmation procedures prevent defensive processing, these procedures can only be effective when some type of defensive processing is present. Therefore, much research on self-affirmation takes into account people's level of involvement (for overviews, see Harris & Napper, 2005; McQueen & Klein, 2006).

Types of Involvement and Defensiveness

We focus on two frequently distinguished types of involvement, namely value-involvement and outcome-involvement (e.g., Eagly, 2007; Johnson & Eagly, 1989). Value-involvement is defined by the association between the topic of a persuasive message and a person's important values. For example, in the domain of health, a message on the negative consequences of eating unhealthy foods may relate to a person's health values. To the extent that the person's self-image or self-defining values include gaining and maintaining good health, this person is highly involved in the topic of the message. Thus, high value-involvement concerns the strong subjective importance of a topic.

Another type of involvement is outcome-involvement (Johnson & Eagly, 1989). This is defined by the association between the topic of the persuasive message and the person's current goals or outcomes. For example, a message about visiting hours in university dormitories is very relevant to students of that university (high outcome-involvement), but not to students at another university (low outcome-involvement) (e.g., Petty & Cacioppo, 1986). Thus, outcome-involvement concerns the objective importance of a topic to an individual; it is less centrally related to the self (Eagly, 2007).

Owing to the different natures of the two types of involvement, they are expected to have opposite influences on people's reactions to a threatening health message. Value-involvement concerns people's core and self-defining values; messages that threaten these values are too threatening to accept, thus people react defensively. Outcome-involvement, however, does not concern the self so directly, which makes it possible for people to accept the message. As Eagly (2007) stated, "Outcome-involvement [...] arouse(s) reality-seeking responding" (p. 68). The two types of involvement relate to a different
extent to people’s selves, and thus arouse different responses. In accordance, some research findings showed that high levels of value-involvement induce resistance to persuasive messages (e.g., Zuwerink & Devine, 1996), while high levels of outcome-involvement lead to increased persuasion and no defensive responses (e.g., Johnson & Eagly, 1989).

As mentioned above, self-affirmation is only effective when people display defensive tendencies. Accordingly, only when value-involvement is considered, is self-affirmation expected to influence the persuasive strength of a health message. Therefore, in most studies focused on self-affirmation in the domain of health communication, researchers aimed to include value-involvement in their research design. In all these studies, level of involvement was measured by determining how relevant a message was to participants. For example, participants were presented with a text about a link between caffeine consumption and fibrocystic disease (this is a precursor to breast cancer). High levels of caffeine consumption are supposed to be an indication of high involvement (e.g., Sherman, Nelson, & Steele, 2000; Reed & Aspinwall, 1998). Other studies were focused on the link between smoking and cancer. People who smoked cigarettes were the high relevance group, and non-smokers or light smokers the low relevance group (e.g., Dillard et al., 2005; Harris, Mayle, Mabbott, & Napper, 2007). Others considered high levels of alcohol consumption or being sexually active as indicators of high levels of value-involvement (e.g., Harris & Napper, 2005; Klein, Blier, & Janze, 2001). The question is, however, whether people’s levels of value-involvement were really captured as assumed in all these studies (Sherman et al., 2000).

In the above-mentioned studies, the level of involvement was determined by looking at participants’ objective behavior (e.g., you smoke thus the message applies to you). Type and level of involvement were thus not manipulated, but based on pre-existent individual differences in behavior. It is possible, therefore, that although a message was objectively relevant, people still perceived the message as unimportant. That is, within a constructed high value-involvement group, people may differ in how personally relevant they perceive the
message to be. Thus, personal beliefs may confound the effects in the low and high involvement groups, which may cause people to feel involved in the low involvement group and vice versa. Owing to the use of objective standards in the studies, it could be reasoned that not value-involvement, but outcome-involvement, was measured. However, the claim that outcome-involvement was actually measured in some of the studies mentioned poses a new problem. That is, many health behaviors can not validly be considered dichotomous. For example, in the case of coffee consumption, fat consumption, fruit and vegetable consumption, physical exercise, and hours of sleep, all people engage in the behavior at least to some extent. It remains unclear what cutoff point should be used to objectively construct a low outcome-involvement group versus a high outcome-involvement group. In sum, in all studies, it is possible that either value-involvement or outcome-involvement, or a mixture of both, was in play. This inconsistency in the way involvement was measured provides a possible explanation why self-affirmation leads to divergent effects. As stated above, it is expected that only when value-involvement is exclusively considered will self-affirmation have an effect, and not when outcome-involvement is considered. Because unconfounded ways of measuring involvement were not used, it is possible that outcome-involvement was captured in some studies. Consequently, no effects of self-affirmation should be found.

Our way of reasoning remains speculative and inconclusive. In the current research, therefore, we explicitly manipulate level (weak versus strong) and type of involvement (value-involvement and outcome-involvement). As a result of using manipulations we are able to examine the influence of involvement in a stricter and unconfounded way. Our central position is that type and level of involvement will determine how people handle a threatening health message, and this will determine whether or not self-affirmation procedures will have an effect on persuasion. In short, we expect that self-affirmation will only enhance persuasion when defensive processes are present; thus, when value-involvement is concerned.
Involvement and Self-Restorative Actions
What kinds of effects can be expected of self-affirmation when value-involvement is concerned? Value-involvement concerns the association between the topic of a persuasive message and one’s important values (e.g., Eagly, 2007; Johnson & Eagly, 1989). In the current research we look at the topic of health and thus also the value people attach to health. As indicated by Eagly (2007), value-involvement induces defensive reactions. Self-affirmation eliminates defensiveness and forces people to be open-minded (Steele, 1988). However, the level of value-involvement determines the extent to which a health message induces a self-threat, and also the effect of self-affirmation. When it comes to the effects of a self-affirmation procedure, there are three possibilities. First, when people attach low value to health, it is plausible that they do not experience a self-threat when confronted with the health threat. Because they do not value health outcomes greatly, self-inflicted negative health outcomes do not indicate a strong relevant inconsistency or inadequacy. Therefore, no defenses are raised and a self-affirmation procedure will have no effect. However, most people do value health to some extent (e.g., Solomon, Greenberg, & Pyszczynski, 2004). For this reason, we did not include this level of involvement in the current research. Second, when people value health, as most people do, but not as a top priority, they experience a self-threat that leads to defenses (for an overview, see Levin, Nichols, & Johnson, 2000). That is, these people may acknowledge the importance of health and they may be aware that unhealthy behavior is inconsistent with this value, but at the same time they may have values that prevent them from making health their top priority. For example, a smoker may value health but at the same time value the desired effects of smoking. This person will experience a self-threat, but will not restore his or her self-integrity by changing the unhealthy behavior. Instead, this person may wish to preserve the unhealthy behavior and become defensive in order to restore the self; this can be prevented using a self-affirmation procedure. In this case, self-affirmation will have an effect; it is expected to increase intentions compared to no self-affirmation. Third, people may value health very highly; health is their top priority. In that
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case, persuasive information that confronts them with possible negative outcomes is in line with their top priorities in life (Brunstein, 2000; Brunstein & Gollwitzer, 1996). Research has shown that a value that is top priority results in a strong commitment that forces people to attain this desired identity (Brunstein & Gollwitzer, 1996), and does not lead to defensive or biased responses. People may experience a self-threat, but instead of reacting defensively they take the opportunity to form intentions in the advocated direction. Because no defenses are raised, self-affirmation will not make a difference. In sum, especially in people who value health, but not so much that they are willing to do everything and take every opportunity to protect or improve it, defensive reactions might be expected. Adding self-affirmation is thus expected to increase persuasion.

Research has shown that when outcome-involvement is concerned no defensiveness is present towards the persuasive appeal (e.g., Johnson & Eagly, 1989). Self-affirmation procedures are known to eliminate defensiveness. Thus, our primary expectation is that self-affirmation procedures will not have any influence on the persuasive strength of the health messages when outcome-involvement is concerned. We expect that participants with strong outcome-involvement will have the most salient threat. They will deal with this increased threat using problem-focused responses aimed at progressing towards their goal of leading a healthy life; thus, they will show increased intention to change their behavior in accordance with the recommendations in the health message.

Overview of Studies
The present studies address the question whether and how type and level of involvement have a moderating influence in the context of self-affirmation and persuasive health communication. In both studies, the message consists of a text about the negative physical consequences of eating insufficient amounts of fruits and vegetables. The self-affirmation procedure consists of positive bogus feedback on a test, which is said to predict future success in work and social relationships (Schwinghammer, Stapel, & Blanton, 2005). In Study 2.1, value-
involvement is manipulated; in Study 2.2, outcome-involvement is manipulated. The effects of exposure to health messages are assessed using a commonly used outcome measure in persuasion research: the intention to change the unhealthy behavior according to the recommendations.

Study 2.1
In Study 2.1 the role of value-involvement was examined; that is, the subjective relevance of a health message was central. In short, we manipulated value-involvement by having participants read about the importance of health. Half of the participants read that health is a top priority (high value-involvement); others read that health is important but not the most important thing in life (moderate value-involvement). We expected a moderating role of value-involvement in the context of self-affirmation and persuasive health messages. Only for participants who were moderately involved did we expect an effect of self-affirmation; such people display defensive reactions, and thus affirmation was expected to have an influence. For highly involved participants we expected no effect of self-affirmation.

Method
Participants and Design
One-hundred-and-thirty students (98 women, 32 men) of the University of Groningen participated in exchange for partial course credit or 5 euro. The average age was 20.55 years (SD = 4.28). Participants were randomly assigned to one of four conditions of a 2 (no self-affirmation vs. affirmation) x 2 (value-involvement: moderate vs. high) between-subjects design.

Procedure
After being welcomed to the laboratory (individual cubicles), the participants were told they were going to participate in a series of supposedly unrelated studies. All measurements were conducted using computer. Before the participants were exposed to any manipulation, some pretest measurements were taken. Next, participants were
exposed to the value-involvement manipulation; they were asked to read a text about the importance of health. The participants were then presented with the self-affirmation manipulation. Participants in the affirmation condition were presented with a test which supposedly mapped their social and work-related skills. At the end they were presented with a very positive score on the test. The participants in the no-affirmation condition were asked to unscramble the names of twenty animals. Next, all participants read a text about the consequences of insufficient fruit and vegetable intake. All participants then completed the dependent measurements. Finally, the experimenter debriefed the participants.

**Materials and Measurements**

*Pretest measurements.* First, participants were asked some general demographic questions (e.g., gender, age). Next, two questions were asked about participants’ intentions to eat sufficient fruits and vegetables; “In the next three months, I am planning to eat the daily recommended amount of fruits and vegetables” (endpoints 1 [certainly not planning this] and 5 [certainly planning this]) and “In the next three months, it is likely that I will eat the daily recommended amount of fruits and vegetables” (endpoints 1 [certainly not likely] and 5 [certainly likely]). We created a composite measure ($r = .74$, $M = 3.55$, $SD = 1.10$).

*Value-involvement manipulation.* Participants were asked to read a text about health. It was supposedly an article from a regional Dutch newspaper, and it described the opinion of a physician about the importance of health. They were told that the aim was to determine their opinions about the article. The text consisted of one page of about 200 words. In the ‘moderate value-involvement condition’ participants were told that health is important but not top priority. This statement was made four times in the text. It was said that health is not something people are continuously aware of, and that health is not something that people spend most of their time and energy on. Two examples were mentioned to underline these statements: 1) many people who bike do not have appropriate lighting and 2) in traffic
people care more about arriving on time than about their safety (both examples are typical of the situation in the Netherlands).

In the “high value-involvement condition” participants were told that health is top priority. This statement also occurred four times in the manipulation. It was underlined that health determines people’s freedom of movement and that health is essential to people’s lives. Again, two examples were mentioned to underline these statements: 1) before crossing a street people always pay attention to other traffic and 2) people take many precautions to prevent harm, like fire precautions and traffic safety measures.

**Self-affirmation manipulation.** The participants were asked to complete a test, which was said to reliably predict future success in work and social relationships. Participants were presented with ten statements (e.g., “I would rather not be responsible for other people”) and were asked to indicate to what extent these statements applied to them (endpoints 1 [not at all like me] and 5 [very much like me]). In the self-affirmation condition, participants were affirmed by immediately receiving positive bogus feedback on their test. Next, they were asked to write down why they thought their score was so high. Participants who did not undergo the self-affirmation procedure were given a puzzle task; they unscrambled the names of twenty animals.

**Threat manipulation.** Participants were presented with a text about the negative consequences of eating less than the daily recommended amount of fruits and vegetables. The article was supposedly published in a scientific journal. The participants were told that the aim of the study was to determine their opinion about the article; therefore, they would be asked some questions about the article. Participants were presented with a text of four pages, each on a different screen, through which they could leaf (total of 620 words). First, the relations between fruits and vegetables, free radicals, and the immune system were addressed. Second, it was made salient that students who eat unhealthily have a higher risk of acquiring a variety of diseases (e.g., the flu and bone cancer). In addition, the participants were shown pictures with possible symptoms of four diseases: fever, diabetes type II, skin cancer, and a tumor.
Dependent measurements. Two questions were used to assess participants’ intention to increase their daily fruit and vegetable intake; “It is likely that I will start within the next six months with a nutritious diet in which I will take the daily recommended amount of fruits and vegetables” (endpoints 1 [certainly not likely] and 7 [certainly likely]) and “I am prepared to start within the next six months with a nutritious diet in which I will take the daily recommended amount of fruits and vegetables” (endpoints 1 [certainly not prepared] and 7 [certainly prepared]). A composite measure was created for intention ($r = .66, M = 5.37, SD = 1.33$).

To check the effectiveness of the value-involvement manipulation we asked participants, immediately after the value-involvement manipulation, whether they agreed with the following statement “Health is a top priority to me” (endpoints 1 [not top priority] and 7 [top priority]). The effectiveness of the self-affirmation manipulation was also assessed. Participants were asked whether the SFAI task/puzzle task gave them a good feeling about themselves (endpoints 1 [absolutely no positive feeling] to 7 [very positive feeling]).

Results and Discussion

Manipulation Check

A one-way ANOVA was conducted to test whether the value-involvement manipulation was effective. As intended, the results show that participants who read a text about health being a top priority in life also indicated that they perceived health as significantly more important ($M = 4.94, SD = 1.59$) compared to participants who read a text that portrayed health as moderately important ($M = 4.25, SD = 1.46$), $F(1, 128) = 6.53, \ p < .05, \eta^2_p = .05$. In addition, we examined the effectiveness of the self-affirmation manipulation. A one-way ANOVA showed a significant main effect of the self-affirmation manipulation; we found that self-affirmation gave participants a better feeling about themselves ($M = 5.73, SD = 1.07$) compared to the puzzle task ($M = 4.75, SD = 1.19$), $F(1, 128) = 24.74, \ p < .01, \eta^2_p = .16$. 
Value-Involvement as a Moderator of the Effect of Self-Affirmation

The moderating effect of value-involvement on the effect of self-affirmation was tested. Two-way analysis of covariance was performed (ANCOVA), with self-affirmation manipulation and value-involvement manipulation as independent variables. Intention measured at pretest was included as covariate. We found a significant main effect of value-involvement on intention to eat fruits and vegetables, $F(1, 125) = 3.79$, $p = .05$, $\eta^2_p = .03$. Participants who were highly involved had a stronger intention to eat sufficient fruits and vegetables ($M = 5.49$, $SE = 0.09$) than did moderately involved participants ($M = 5.24$, $SE = 0.09$). In addition, we found a significant main effect of self-affirmation; participants who were affirmed reported a stronger intention ($M = 5.58$, $SE = 0.09$) than did non-affirmed participants ($M = 5.15$, $SE = 0.09$), $F(1, 125) = 11.05$, $p < .01$, $\eta^2_p = .08$.

![Figure 2.1](image-url)

**Figure 2.1** Intention to eat the daily recommended amount of fruits and vegetables as a function of self-affirmation and value-involvement, Study 2.1.
Most importantly, we found a significant interaction effect between value-involvement and self-affirmation, $F(1, 125) = 5.08, \ p < .05, \ \eta_{p}^2 = .04$. Only for moderately involved participants did we expect self-affirmation to increase intention to eat fruits and vegetables. The simple slopes analysis confirmed the hypothesis that adding a self-affirmation procedure resulted in a stronger intention ($M = 5.60, \ SE = 0.13$) compared to no-affirmation ($M = 4.87, \ SE = 0.13$), $F(1, 125) = 15.39, \ p < .01, \ \eta_{p}^2 = .11$. For participants who were induced to regard health as a top priority we expected to find no effect of self-affirmation. The results did not show a significant effect, $F(1, 125) = 0.57, \ p = .45, \ \eta_{p}^2 = .01$ (see Figure 2.1). The means were as follows: no self-affirmation ($M = 5.42, \ SE = 0.13$) and self-affirmation ($M = 5.56, \ SE = 0.12$).^{2,3}

^{2} It is possible that level of involvement influenced the level of the threat; thus highly involved participants might perceive the same threatening text as more threatening. To determine whether this was the case we asked participants at posttest to answer two questions about the seriousness of the consequences of insufficient fruit and vegetable intake. First, participants reported how severe the consequences of insufficient daily fruit and vegetable intake could be (endpoints 1 [not so severe] and 7 [very severe]). Second, participants’ affective risk perception was measured: “I feel anxious when I think about the possible consequences of not eating the daily recommended amount of fruits and vegetables” (endpoints 1 [no anxiety at all] and 7 [very anxious]).

To investigate whether or not value-involvement determines the level of threat felt, we conducted a one-way ANOVA. Value-involvement was the independent variable. The results showed no significant effects of value-involvement on either severity or affective risk perception ($F < 1.5, \ n.s.$). Thus, the value-involvement manipulation had no effect on the level of threat participants perceived.

^{3} To be able to correct for the possible influence of objective amount of unhealthy behavior displayed, we posed two questions concerning fruit and vegetable intake at pretest: “Do you eat 2 pieces of fruit daily?” and “Do you eat 200 grams of vegetables daily?” (endpoints 1 [I eat less than the norm] and 7 [I eat more than the norm]). Both items correlated significantly ($r = .23, \ p < .01$); they were, therefore, combined in a composite measurement ($M = 3.57, \ SD = 1.10$). The significance level of the manipulation checks in Study 2.1 did not differ when we included fruit and vegetable consumption as additional covariate. Neither did the inclusion of fruit and vegetable consumption change the significance level of the moderation analysis mentioned.
Study 2.2

The findings of Study 2.1 show that value-involvement fulfills a key role in the effects of self-affirmation procedures when participants are presented with a threatening text. However, we expected that the results would be unique to this specific type of involvement. In Study 2.2 we concentrated on the role of outcome-involvement (e.g., Johnson & Eagly, 1989). Outcome-involvement concerns the objective relevance of a topic instead of its subjective relevance. In short, we expected only a main effect of outcome-involvement, and we expected to find no indication that self-affirmation influences persuasion. Self-affirmation procedures are known to eliminate defensiveness. We expected that when outcome-involvement was central no defensiveness would be present; thus, when defensiveness was not present a self-affirmation procedure would not have any influence. However, participants with strong outcome-involvement would experience the most pervasive threat, and we expected them to deal with this threat by directly following the recommendations in the message.

Outcome-involvement was manipulated; on the basis of a bogus genetic test, participants were told that they were or were not vulnerable to the consequences of insufficient fruit and vegetable intake. As in Study 2.1, half of the participants were exposed to the self-affirmation procedure, and all were asked to read a text on the negative consequences of insufficient fruit and vegetable consumption.

Method

Participants and Design
One-hundred-and-thirty-six students of the University of Groningen and of Hanze University Groningen (104 women, 32 men) participated in exchange for partial course credit or 5 euro. The average age was 20.67 years ($SD = 3.13$). Participants were randomly assigned to one of four conditions of a 2 (no self-affirmation vs. self-affirmation) x 2 (outcome-involvement: low vs. high) between-subjects design.
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Procedure
After being welcomed to the laboratory (individual cubicles), participants were told that they would participate in a series of supposedly unrelated studies. The experiment started with part of the outcome-involvement manipulation, consisting of a bogus saliva test (DNA test). After the test, all participants completed similar pretest measurements as used in Study 2.1. The self-affirmation manipulation followed; this was identical to the one described in Study 2.1. Following this, the results of the DNA test were given to the participants (this was the outcome-involvement manipulation). Next, participants received the same threat manipulation as used in Study 2.1, followed by the dependent measurements. All the measurements were conducted using computer. Lastly, the experimenter carefully debriefed the participants.

Materials and Measurements
Pretest measurements. As in Study 2.1, we first asked some demographic questions (e.g., gender, age). In addition, we asked participants to answer two questions about their intention to eat sufficient fruits and vegetables. The questions were, “I am planning to consume the daily recommended amount of vegetables” and “I am planning to consume the daily recommended amount of fruits” (endpoints 1 [certainly not planning this] and 5 [certainly planning this]). A composite measurement was created ($r = .52$, $M = 4.13$, $SD = 0.79$).

Outcome-involvement manipulation. To manipulate outcome-involvement in the context of health, participants were given feedback on a bogus saliva test (DNA test). The participants read an explanation of the DNA test in their individual cubicles. Participants were made to believe that a mutation on a specific gene is closely related to health. The text stated that health is for seventy-five percent determined by enzymes, which can be produced by the gene mutation. Having the gene mutation means that eating healthy is not so important, since the body produces the enzymes by itself (low outcome-involvement manipulation). Without the gene mutation, one needs to eat enough fruits and vegetables, because these foods contain substances which
the body needs to make the enzymes. Not having the gene mutation means that a healthy diet is essential for good health (high outcome-involvement manipulation). The participants were informed that the DNA test consisted of chewing on absorbent cotton for fifteen seconds; this would be placed in a medical vial. Next, a special liquid that reacts with saliva would be poured in the medical vial. An indicator strip would make clear whether the participant had the gene mutation or not. For the participants in the low involvement group, if the strip turned blue, this meant that they had the gene mutation. For the participants in the high involvement group, the blue strip meant that they did not have the gene mutation.

After the participants had read the text, the test leader asked them to follow her to another room, where the DNA test was performed. Medical attributes were placed in the room (doctor’s jacket, pipette) to make it as convincing as possible. Each participant was asked to chew on a piece of absorbent cotton. The experimenter explained to them that DNA tests take some time; the participants were invited to continue with the rest of the experiment.

Just before the threat manipulation, the test leader informed each participant individually of the result of the DNA test. The medical vial with absorbent cotton, liquid, and indicator strip were shown as proof of the test result. Half of the participants were made to believe that they had the gene mutation: “Your body generates health by itself, it does not matter what you eat” (low outcome-involvement). The other half of the participants were made to believe that they did not have the gene mutation: “Your body does not generate health by itself; therefore, it is very important for you to eat enough fruits and vegetables every day” (high outcome-involvement).

**Dependent measurements.** As in Study 2.1, we asked participants about their intentions to consume sufficient amounts of fruit and vegetables: “It is likely that within the next six months I will start a nutritious diet in which I will eat the daily recommended amount of fruits and vegetables” (endpoints 1 [certainly not likely] and 7 [certainly likely]) and “Within the next six months I am planning to start a nutritious diet in which I will eat the daily recommended amount
of fruits and vegetables” (endpoints 1 [certainly not planning this] and 7 [certainly planning this]). A composite measurement was created for intention \(r = .72, M = 5.08, SD = 1.32\).

To verify the meaning of our measure of outcome-involvement we included a measurement of vulnerability: “How vulnerable are you to the consequences of eating less than the daily recommended amount of fruits and vegetables?” (endpoints 1 [absolutely not vulnerable] and 7 [very vulnerable]). The effectiveness of the self-affirmation manipulation was assessed after the intention measurements. We asked participants about their self-feelings: “How high is your self-esteem?” (endpoints 1 [not at all high] and 9 [very high]).

**Results and Discussion**

*Manipulation Check*

A one-way (outcome-involvement: low vs. high) ANOVA was conducted to check the effectiveness of the outcome-involvement manipulation. As expected, the high involvement group perceived themselves as more vulnerable to the consequences of insufficient fruit and vegetable intake \((M = 4.35, SD = 1.26)\) than did the low involvement group \((M = 3.27, SD = 1.52)\), \(F(1, 134) = 20.42, p < .01, \eta^2_p = .13\). Thus, highly involved participants perceived the consequences of an unhealthy diet as personally more relevant and likely.4,5

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4 Two control groups \((N = 62)\) were added to enable us to check the effectiveness of the threat manipulation. The average age was 20.30 \((SD = 2.24)\). Participants were not exposed to threatening information in either group, and they did not undergo a self-affirmation procedure. One group was exposed to the high involvement manipulation, and the other to the low involvement manipulation. Participants in the control condition were given a text about the history of mustard. The text was the same length as that about nutrition habits, and contained some pictures of mustard seeds and mustard plants. To check the effectiveness of the manipulation we again posed questions at posttest to determine severity and affective risk perception. A one-way ANOVA was conducted to test whether the threat manipulation was effective. Condition (no threat vs. threat) was included as independent variable. As expected, the participants who were threatened \((M = 4.74, SD = 1.34)\) perceived the consequences of eating insufficient amounts of fruits and vegetables as more severe than did the participants who were not threatened \((M = 4.00, SD = 1.39)\), \(F(1, 196) = 11.99, p < .01, \eta^2_p = .06\). Threatened participants also anticipated more negative consequences due to unhealthy habits \((M = 2.91, SD = 1.39)\).
A one-way ANOVA was conducted to test whether the self-affirmation manipulation was effective. Condition (no self-affirmation vs. self-affirmation) was included as independent variable. The self-affirmation manipulation showed the expected effect; self-affirmed participants reported more positive self-feelings ($M = 6.40, SD = 1.23$) than did the non-affirmed participants ($M = 6.00, SD = 1.28$). The main effect approached significance, $F(1, 134) = 3.52, p = .06, \eta^2_p = .03$.

**Outcome-Involvement and Self-Affirmation**

The role of outcome-involvement in the context of self-affirmation and persuasive health messages was tested. We conducted a 2 (no self-affirmation vs. self-affirmation) x 2 (outcome-involvement: low vs. high) ANCOVA. Again, intention measured at pretest was included as covariate. The interaction effect was not significant, $F(1, 131) = 0.07, p = .79, \eta^2_p = .001$. We also did not find a main effect of self-affirmation, $F(1, 131) = 0.62, p = .43, \eta^2_p = .005$. As predicted, we did find a main effect of the outcome-involvement manipulation on intention to eat sufficient fruits and vegetables, $F(1, 131) = 4.30, p < .05, \eta^2_p = .03$. The results showed that participants who experienced outcome-involvement had a stronger intention to change their behavior in accordance with the persuasive message ($M = 5.41, SE = 0.13$) than

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= 1.49) compared to participants in the control condition ($M = 2.11, SD = 1.15$), $F(1, 196) = 13.98, p < .01, \eta^2_p = .07$.

In addition, a two-way ANOVA was conducted to make sure that involvement did not moderate the effects of the threat manipulation; thus, to ensure that the threat manipulation did not have a greater impact on highly involved participants. Condition (no threat vs. threat) and outcome-involvement were the independent variables. The results showed a significant main effect of threat only on severity ($F[1, 194] = 12.71, p < .01, \eta^2_p = .06$) and on affective risk perception ($F[1, 194] = 14.56, p < .01, \eta^2_p = .07$). Thus, the bogus DNA test had no effect on the amount of threat the participants felt.

5 A two-way ANOVA was performed to see whether level of threat moderated the effect of the outcome-involvement manipulation. Amount of threat and level of involvement were the independent variables. The results showed only a significant main effect of the manipulation of outcome-involvement on vulnerability, $F(1, 194) = 26.19, p < .01, \eta^2_p = .12$. 

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did participants who experienced no outcome-involvement (M = 5.05, SE = 0.12).  

**General Discussion**

The aim of the present studies was to show that type and level of involvement determine the effects of self-affirmation in the context of persuasive health messages. The two types of involvement relate to a different extent to people's selves and thus arouse different responses; only value-involvement was expected to induce defensive reactions (Eagly, 2007). Consequently, we only expected to find an effect of self-affirmation when value-involvement was manipulated. Accordingly, we found in Study 2.1 that value-involvement had a moderating influence on self-affirmation; in Study 2.2, we did not find an effect of outcome-involvement on self-affirmation. In Study 2.1, we found that self-affirmation only influenced persuasion for participants in the moderate value-involvement condition. When these participants were confronted with a negative health message they reacted defensively and consequently reported a low intention to consume fruits and vegetables. Self-affirmation weakens these defensive attempts and forces people to accept the threat; participants reported increased intentions to eat fruits and vegetables. For participants with a high level of value-involvement the self-affirmation procedure had no effects. The results show that when values are so important, participants handle the self-threat by forming intentions to act more healthily. Thus, adding self-affirmation had no effect, because there were no defensive reactions to be eliminated.

In Study 2.2 we only found a significant main effect of outcome-involvement. We did not find any indication that self-affirmation

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6 As in Study 2.1, we checked whether objective amount of unhealthy behavior displayed influenced the results found in Study 2.2. We posed the same two pretest questions concerning fruit and vegetable intake. Both items correlated significantly (r = .18, p = .01) and were, therefore, combined in a composite measure (M = 3.35, SD = 1.05). The significance level of the manipulation checks and the analysis concerning the dependent variable in Study 2.2 did not change when we included fruit and vegetable consumption as additional covariate.
influences persuasion when outcome-involvement is manipulated. Participants simply handled the (self-)threat by forming intentions to reach their goal of improving their health. These outcomes underline the statement of Eagly (2007) that outcome-involvement induces not defensiveness, but “reality-seeking” responses (p. 68). This means that defensive reactions aimed at handling the threat in an emotion-focused way are not an option, because they provide no realistic attempt to reach the goal of staying healthy. Thus, adding a self-affirmation procedure, aimed at lowering defensiveness, does not have any effect. In sum, the findings of both studies show that self-affirmation is not a tool that should be expected to increase the persuasive impact of health messages in all circumstances. Self-affirmation can only be expected to increase persuasion when people’s personal values are in play, because their selves are then threatened so directly that they react by defensively processing the information. However, these values should not be too strong, because when health is a top priority in people’s lives they are not inclined to react defensively to a health message to restore their self-integrity. Clearly, using self-affirmation to prevent defensiveness is useless in the absence of defensiveness.

Involvement Concept

By explicitly comparing different types of involvement in the current study, we also shed some light on the findings of previous research on self-affirmation in the field of persuasive health communications. The findings of previous research on self-affirmation show a somewhat messy picture of the role of self-affirmation. Some researchers found no effect of self-affirmation at all (Dillard et al., 2005; Fry & Prentice-Dunn, 2005), while others found that self-affirmation does influences persuasion (e.g., Harris & Napper, 2005). Involvement was included in all studies, but it was never manipulated. Level of involvement was operationalized as the objective validity of the text: people display the behavior; therefore, it applies to them (Harris & Napper, 2005; Sherman et al., 2000). The implication is that this procedure captures value-involvement. However, one could easily argue that the researchers actually looked at the role of outcome-involvement. Thus, it
is possible that different types of involvement were central in each of these studies. The current research findings show the importance of using strict manipulations of involvement. Only when value-involvement is concerned can one expect helpful influence of self-affirmation in increasing persuasion. Thus, the current research findings provide an explanation of why self-affirmation does not always have to be effective. This makes clear that in previous studies in which an effect of self-affirmation was not found, self-affirmation was not necessarily used improperly. It is possible that outcome-involvement was made salient instead of value-involvement.

In order to solely capture each type of involvement, we had to construct manipulations that differed substantially. The two types of involvement refer to different phenomena and thus require manipulations that are not alike in order to induce these different states. Value-involvement refers to people's personal beliefs. We chose not to activate people's own beliefs to induce different levels of value-involvement; for example, by asking participants to complete a writing assignment. A problem with activating people's personal beliefs is that these could function like self-affirmation (i.e., writing about important values) or they might induce cognitive dissonance (i.e., asking people to write down things which contradict their own values and beliefs). In addition, outcome-involvement was manipulated using a DNA test. This rather complicated procedure was necessary to convince people that the health message did or did not objectively apply to them. It was important not to incorporate previous behavior, because this could have been confounded with value-involvement.

Considerations and Limitations
The manipulations used in the current research provide some points of consideration. In previous research, level of involvement was based on participants' behavior. No additional questions or texts were presented to participants. They simply answered questions, for example, about how much coffee they drank and then read a text about the link between coffee and cancer (e.g., Reed & Aspinwall, 2005; Sherman et al., 2000). In the current research, however, we manipulated
involvement by activating it; we did this by providing participants with additional information about the importance of health (value-involvement) or by explaining bodily health (outcome-involvement). Participants were then asked to read a threatening health message. The manipulations of involvement were assumed to activate a certain level of involvement. No such explicit activation was present in previous research. It is possible that this difference created different processes, and thus different outcomes. However, the advantage of our manipulations of involvement is that we did not need to be so concerned about confounding factors.

Another point in which the current research differs from previous research is in the levels of value-involvement included. In Study 2.1 we looked at moderate versus strong levels of value-involvement. We did not include weak value-involvement. This was because most people value health at least to some extent. Most people want to live a long and healthy life, and fear death (e.g., Arndt, Cook, Goldenberg, & Cox, 2007; Solomon et al., 2004). Therefore, making people believe a manipulation that stresses that health is totally irrelevant is difficult. However, in previous research low and high involvement were always considered. Concerning the low involved group, no effects of affirmation were normally found (for an overview, see Harris & Napper, 2005). As we did not include this level of involvement, it is impossible to compare outcomes. In addition, previous researchers mostly reported effects of self-affirmation for people who were highly involved; adding self-affirmation leads to a stronger intention to comply with the recommendations. We found these effects not for the strongly involved participants, but for moderately involved participants. It is possible that the groups that were previously defined as highly involved were actually moderately involved, and that truly highly involved participants were never examined. However, no objective cutoff points exist that state when involvement is low, moderate, or strong. More research is needed to establish objective cutoff points so that research becomes comparable.

In addition, when we looked at the role of outcome-involvement, we considered weak levels of involvement instead of moderate levels of
involvement. The manipulations used in Study 2.2 made it possible to manipulate low outcome-involvement. Also, a moderately involved group is theoretically less interesting when considering outcome-involvement; based on the literature we simply expected a linear relationship between level of outcome-involvement and persuasion. However, to fully comprehend the current findings and to correctly relate them to previous findings, it is important to underline which levels of involvement we included in the current research.

Summary and Conclusion
In the present studies a self-perspective on persuasion was used. The present results are consistent with a growing body of evidence indicating that self-affirmation does not always enhance the amount of persuasion (e.g., Harris & Napper, 2005). However, the presented studies expand on previous approaches in that a self-perspective on persuasion was used to explain these findings. In explaining the effects of self-affirmation, we focused on how the different types of involvement relate to people’s values, self-views, and self-defining goals. Given the central importance of the self and self-evaluation in human functioning, the field of persuasive communication may benefit from a more systematic application of self-theories.