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# What effect does the assertiveness of an exercise promotion message have on the intention to exercise?

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# Abstract

Assertive persuasive messages are used in many contexts; a lot of companies use assertive phrases in their ads. Yet assertive messages have been found in previous research to elicit reactance. Reactance often has a negative influence on message persuasiveness and message adherence. This study sets out to find out what the effects of assertive messages and reactance are on the intention to exercise. By investigating an antecedent of reactance, 'pressure to comply' it is also investigated whether these constructs are related to each other. As an addition, a difference is made between low active and active exercisers, by analysing if they are different in their reaction to assertive messages. An online experiment was conducted (N=136), with an intervention group and control group. The intervention group was exposed to assertive exercise related messages in the form of a poster and subsequently, had to fill in the questionnaire with questions regarding pressure to comply, reactance and intention to exercise. The results showed that assertive messages elicited pressure to comply. Pressure to comply was significantly and positively correlated with reactance. Reactance did not significantly result in lower intentions to exercise. A significant result was also not found for the hypothesis that active exercisers respond more positively than low active exercisers towards assertive messages.

# 1. Introduction

In the world of today, exercise is an essential part of the lives of many different people and is essential to being healthy. Exercise can have many benefits to many kinds of people. In recent years studies have proven that exercise has a positive impact on cardiovascular health (Penedo and Dahn, 2005; Blair and Morris, 2009). It is becoming clear that people who perform an adequate amount of exercise are less vulnerable to develop stroke, some form of cancer, type 2 diabetes, obesity, osteoporosis and loss of function in older ages (Penedo and Dahn, 2005; Blair and Morris, 2009). Exercise has shown that even in the absence of weight reduction, there are still many health benefits that exercise can provide (Penedo and Dahn, 2005). Exercise is not only a good idea for physical health, but also for mental health, because several studies suggest that exercise is a good tool for improving mental well-being. Exercise can improve depression, anxiety, stress responsivity, mood, and body image (Scully, Kremer, Meade, Graham and Dudgeon, 1998; Penedo and Dahn, 2005).

Exercising thus has many benefits, but the problem is that many people do not get an adequate amount of physical activity. In data from an US study it is apparent that a lot of adults do not get enough exercise. Half of the American population (49.1%) does not meet the recommended daily dosage of activity (Haskell, Lee, Pate, Powell, Blair, Franklin, Macera, Heath, Thompson and Bauman, 2007). In the Netherlands, this number is almost equal to half of the population (Beweegrichtlijnen RIVM, 2017). Recommendations for exercise worldwide is around 150 minutes of moderate exercise a week, yet globally adherence to this recommendation is only 31.1% (Herazo-Beltrán, Pinillos, Vidarte, Crissien, Suarez and Garcia, 2017).

Exercise is important for everyone, as it has many benefits, yet adherence to physical activity seems to be rather hard. A lot of people feel barriers to perform physical activity and keep committed to exercise. The most common barriers are lack of motivation, lack of time, lack of social support, lack of resources, lack of energy, fear of injury and lack of skill (Herazo-Beltrán et al, 2017). Yet other studies have found other barriers like psychological problems as anxiety and body shaming (Smits, Tart, Presnell, Rosenfield and Otto, 2010). Personality is also a big indicator of a person's willing to adhere to exercise, whereas extraverted people are more willing to perform physical activity than introverted people (Courneya and Hellsten, 1998).

Promoting exercise by means of persuasive messages is important for a physical and psychological healthy population. A large stream of literature investigated the impact of various types of persuasive messages on the intention to exercise and actual behaviour (Quick and Considine, 2008; Latimer, Brawley and Basset, 2010; Gray and Harrington, 2011; De Bruijn, Out and Rhodes, 2014; Jensen, Ratcliff, Yale, Krako, Scherr and Yeo, 2018). The framing of messages has been an important aspect of these studies. In a review by Latimer et al (2010) three persuasive messages where identified that are important in relation to exercise promotion, because they address critical characteristics, can easily be integrated, and have a substantive body of evidence. The first is message tailoring which involves

presenting information in a way that is tailored towards the message recipient. Message tailoring showed a favourable effect in half of the studies reviewed, showing that message tailoring causes more physical activity than in control groups. The second persuasive message technique is message framing. Message framing can be described as emphasising benefits (gain frame) or costs (loss frame) of succeeding/failing to adopt a behaviour, in this case exercise. Particularly, it was found that gain framed messages where significantly better in promoting physical activity than loss framed messages. The third message type is self-efficacy change messages, which can be described as a strategy to target influential determinants of physical activity behaviour. Self-efficacy change messages focus on altering self-efficacy beliefs. It was found that self-efficacy rises, when messages are simple and easy to understand, thus increasing exercise intentions. These three types of messages have shown to have great promise in promoting exercise intentions (Latimer et al, 2010).

Recently in advertising the relation between unassertive/assertive messages in relation to purchasing intention and ad liking has been studied. In this study, participants were either exposed to either assertive (e.g. 'Just do it') or non-assertive ads (e.g. 'Now is a good time to buy'). Results showed that the assertive ad evoked non-compliance guilt among committed brand consumers. This non-compliance guilt in turn raised pressure to comply and lowered purchase intentions (Zemack-Rugar, Moore and Fitzsimons, 2017). This study is of interest for this one, because this phenomenon could also take place when communicating about exercise. In this study the focus will be on the effect of assertive messages on people's exercise intention and whether this depends on how active they are when exercising. Few studies examined the assertiveness of a message when applied to physical activity promotion. Therefore, the following research question has been formulated: What effect does the assertiveness of an exercise related promotion message have on the intention to exercise?

Moreover, an additional research question is whether this effect is mediated by pressure to comply and reactance? Reactance is the psychological phenomenon that causes individuals to reject a promotional message. Reactance is described as a motivational state, which is aroused when an individual feels that their freedom of choice is threatened. When reactance occurs in an individual they are directed towards a state of restoration of the threatened behaviour (Miron and Brehm, 2006).

An online experiment was executed, where participants were exposed to either an assertive exercise promoting message or a control message. Next, they were asked to indicate their intention to exercise as an outcome measure. The survey also included questions to better understand the underlying mechanism explaining the effect of an assertive message. Pressure to comply and reactance were used as a measure to see if unassertive/assertive messages raise exercise intentions in low/high active adults.

This study has relevance, because the results of this study can inform policy makers and marketers in health promotion to develop more effective messages. It will also help to

understand which target group to select in promoting physical activity with specific type of messages.

# 2. Theoretical Framework

## 2.1 Assertive language and compliance

Assertive messages are used in different contexts. Nike's ''just do it'' is one example of an assertive message usage in advertising. Assertive language usage in research has been well documented by a lot of different authors (Dillard and Shen, 2005; Miller, Lane, Deatrick, Young and Potts, 2007; Quick and Considine, 2008; Kronrod, Grinstein and Wathieu, 2012; Zemack-Rugar et al, 2017). A common tendency in these studies has been that the use of assertive language tends to reduce compliance towards the message. Reduction of compliance tends to be affiliated with reactance which causes rejection of the message (Fogarty, 1997; Wilson and Kunkel, 2000; Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008; Kronrod, Grinstein and Wathieu, 2012; Murray and Matland, 2015; Zemack-Rugar et al, 2017). To understand the use of assertive language and the effect it has in different kind of contexts, different studies have been done.

In personal requests this effect has been studied in relation towards giving advice and asking favours. This is based on Wilson and Kunkel (2000) analysis of face threats and compliance gaining. In this paper it is studied that attempts to seek compliance can create threats to face. If someone perceives a threat to face, this person feels that they lose control of their autonomy and want to be free of constraint. Similarly, it could also mean this person feels that actions are not being approved by significant others. When threat's to face are being perceived people try to mitigate these threats by trying to remain autonomous or by trying to be approved by others. Wilson and Kunkel (2000) applied this theory in their study when trying to seek compliance in sexual encounters. When people try to gain compliance in these encounters, a threat to face can be perceived by the targeted person. In this study trying to gain compliance was measured by asking a favour, this favour was in the form of a sexual request. Asking a favour (assertive language) when trying to gain compliance can be perceived as a threat to the face by the person. When people perceive a sexual request as a threat to face, they want to retain their autonomy and thus use a mitigating strategy. This study emphasizes the effect of assertive language on compliance seeking requests in that assertive language usage in requests decrease compliance (Wilson and Kunkel, 2000).

In health communication there has also been found that using assertive language can reduce compliance. High levels of assertive language increase reactance to the health message, resulting in evaluating messages less positive and less credible. This increase of reactance reduces compliance towards the message because reactance raises negative cognitions towards the message thus reducing compliance (Dillard and Shen, 2005; Miller et al, 2007).

Dillard and Shen (2005) studied this by conducting two studies which only differed in message topics. In each study, respondents read one of two versions of a persuasive message that varied in strength of the message. Subsequently, the study provided data on cognitive and affective responses, attitudes, intention, and reactance. The chosen message topics were flossing and binge drinking, which were chosen to generate a variety in differences and therefore, increase generalizability. The message containing information about flossing and drinking were very similar designed, both contained a threat and action component. The threat component in both messages discussed the negative consequences of not-flossing and binge drinking. The action component contained a manipulation regarding a threat to a respondent's freedom which varied in strength. In both cases the strong threat condition contained forceful language as well as the milder condition, in the weak condition politer language was used. The main result indicated that across cases a strong threat condition should be avoided all together, because assertive language does not result in compliance towards the message. The advice is to rather use informative messages than persuasive messages, since it was found that persuasive messages increased reactance and thus decreased the adherence of the action component (Dillard and Shen, 2005).

The study of Miller et al (2007) was similar it contained the same target group and levels of assertive language were manipulated by altering a promotional health message. The study differed in that participants had to complete a questionnaire before the study was executed. The questionnaire contained a scale which measured trait reactance and subsequently reactance was measured after this questionnaire by the study itself. This scale measured trait reactance by asking 10 questions and asking participants if they strongly agreed/strongly disagreed. After the questionnaire was completed respondents read the promotional health message. 8 promotional health messages were developed which contained information advocating exercise and physical activity. Assertive language was manipulated by using terms such as 'should', 'ought' and 'must'. Concreteness of messages was also investigated by giving concrete specifics as ''burn up to 440 calories per hour'' instead of abstract information. Perceived threat to freedom, perceived explicitness, and perceived concreteness where measured. Results indicate that low-controlling (less assertive) language is the most powerful in reducing reactance, however restoration of freedom scripts (e.g. a postscript message at the end suggesting that it is up to the receiver to make up his own mind) may offer a viable solution to overcome effects of assertive language. Concreteness of the message has been found to have a powerful influence on the persuasiveness of a message. Whereas low-controlling autonomy-supportive language has a positive effect on message adherence, so does concreteness by increasing attention to the message, concreteness causes greater perceived importance, and more behavioural attention (Miller et al, 2007).

People in a positive mood tend to use more assertive language in requesting, correspondingly people in a positive mood expect to be addressed in a similar way (Forgas, 1995, 1999). Positive mood has been related to hedonic consumption. When people engage

in hedonic consumption, they are more likely to have a positive mood and are thus more open towards assertive language and more willing to comply to requests, respectively assertive messages had a lower willing to comply in utilitarian consumption. This effect was studied by investigating two different kind of advertisements. Both advertisements were business focused with differences in framing, one advertisement promoted a consulting company and gave a hedonic frame through a figurative description and an emotional appeal. The other promoted a telecommunications company and used a photograph of formally dressed people. The assertiveness of the messages was manipulated by editing the sentences in each ad into several assertive/non-assertive messages. The idea was to use real advertisements with small changes. This study showed that a positive mood elevates readiness for compliance and thus showed that assertive language can also increase compliance instead of decreasing it (Kronrod, Grinstein and Wathieu, 2012).

Another such effect has been found in environmental research. By examining the assertiveness of real environmental slogans (www.thinkslogans.com, e.g. for EarthDay, GoGreen, recycling) it has been found that environmental messages (e.g. 'only you can prevent forest fires and stop the catastrophe!') have a surprising prevalence (57%) of assertive language. Kronrod et al (2012) found that assertive message usage yields greater compliance when message receivers perceive an issue as important, however when a general audience is the target less assertive language should be used. This was studied by showing participants a 2-minute video about air pollution. Prior the video, participants filled in a questionnaire measuring how involved they were regarding the environment. Subsequently, their reactions to an assertive and non-assertive message were compared with a similar group who had not seen the clip (Kronrod et al, 2012).

## 2.2 Research on assertive language in advertising

In a study by Zemack-Rugar et al (2017), the effects of assertive language in advertising has been investigated. This study investigated if customer brand relationships influenced the response towards assertive ads. Their series of studies showed that, consumers in committed brand relationships respond more negative to assertive ads than uncommitted consumers.

Study 1 tested how consumers react to assertive ads regarding their commitment towards the product. This was done by asking respondents to identify with a brand with which they had either an uncommitted or committed relationship. Afterwards participants viewed an ad with the brand name in the ad itself. There were two ads that were either non-assertive or assertive. After the viewing of the ad participants reported on their ad liking. Next to this, participants were also asked about brand personality. The results from study 1 indicated that consumers in committed brand relationships respond more negatively when an ad is assertive. Uncommitted consumers responded similarly to both type of ads.

To generalize these findings, in the second study they used committed brand consumers and showed them a new assertive ad that used polite language in it. Also, the second ad took a directive approach, 'now is a good time to buy', this was predicted to be less assertive and therefore exerted less pressure to comply. This was done to check if it really was the assertiveness of the ad. Results indicated that making an ad more polite did not affect consumers' responses and it did also not affect the way consumers thought about how the brand communicated with them.

In study 3 the mediating role of the constructs non-compliance guilt and pressure to comply was checked. This was done by showing consumers in a committed or uncommitted brand relationship an ad about a snack bar product. Afterwards they viewed an ad that used two assertive taglines on the product. Non-compliance guilt was measured by three items like ''if I didn't follow the suggestion of this ad, I might feel guilty'', pressure to comply was measured using three items like ''I felt the ad was attempting to dictate my behaviour''. Study 3 indicated that, assertive ads from committed brands were less liked than those from uncommitted brands. This effect was mediated by the constructs non-compliance guilt and pressure to comply.

In study 4, variables were identified that increased or decreased non-compliance guilt. The strength of the non-compliance norms was manipulated, by showing ads that used either one of two compliance norms loyalty or purchasing timing. This was done because, loyalty refers to a committed relationship and is a central norm whereas purchasing timing is not. Non-compliance with loyalty as a central norm is perceived as a greater violation than purchasing time as a norm and therefore assertive ads that reference loyalty should elicit more reactance. Results indicated that committed consumers reacted more negatively towards an assertive ad referencing a loyalty norm. Therefore, it is related towards strong non-compliance guilt and elicits reactance, whereas this was not the case for the non-assertive ad.

In study 5 reactance to assertive ads was tested by looking if the perceived violation that non-compliance represents could be reduced. By doing this non-compliance guilt and pressure to comply would be reduced and so would reactance. Participants first identified a hygiene product with which they had a committed or uncommitted brand relationship. This was done by looking at their brand relationship and their affirmation. Participants had to rank their relationship with the brand in order of nine values of importance. Afterwards participants wrote about a time when they were most positive about the relationship. Subsequently participants viewed an assertive ad that used messages like 'buy now'. Results indicated that these negative effects that assertive ads have on committed consumers can be reduced by using an affirmation process.

The research done by Zemack-Rugar et al (2017), contained multiple studies with multiple messages using assertive ads. General results indicated that assertive ads cause more reactance in committed brand consumers. Non-compliance guilt causes pressure to comply

and therefore a consumer experiences reactance. It also showed the mediating role of non-compliance guilt and pressure to comply by manipulating them and showing that reactance increased or decreased accordingly. This study has implications because, it shows that assertive ads should not be used towards the most loyal customers, because they react the most negative (Zemack-Rugar et al, 2017).

## 2.3 Assertive language in exercise promotion

The focus of this study is on assertive language usage in the promotion of exercise relation activities. To my knowledge, there are only a few studies done on the use of assertive language when designing exercise persuasive messages and their effect of psychological reactance (Miller et al, 2007; Quick and Considine, 2008). The Quick and Considine (2008) study was done by conducting a face to face survey with 250 members of a fitness club in the United States. The authors expected that (1) assertive language is positively related to a perceived threat of choice, (2) the more people perceive a threat, the more they experience reactance, and (3) there is a negative association between reactance and the persuasiveness of the message. To test these hypotheses four persuasive messages were created, two that advocate participation in individual training and two in group training. Consequences about the negatives of not performing exercise were included in all messages. For both topics one message contained assertive language. Reactance was conceptualized in this study as a two-step process regarding perceived threat to choice and persuasiveness of the message. Results showed that the relation between assertive language and perceived threat to choice was significant and that individuals who perceive a threat to their freedom express their resentment through negative emotions like anger. Moreover, the results showed that as reactance increases, the message persuasiveness decreases (Quick and Considine, 2008).

In short, this study showed that assertive language has a negative effect on exercise promotion message persuasiveness. According to the authors, it is even counterproductive, since assertive language in general is not an effective tool for mobilizing behaviour change (Quick and Considine, 2008).

## 2.4 Psychological Reactance Theory (PRT)

Reactance is a psychological phenomenon, which may cause people to reject a promotional message. Psychological reactance theory describes that if an individual feels that the free behaviour in which they engage, is threatened with elimination, then a state of reactance will be activated. This state directs the person towards freedom restoring behaviour and rejection towards the threat (Miron and Brehm, 2006). This theory is largely based on dissonance theories and resistance to social influence. It was first researched by Brehm (1966), who was interested in oppositional effects occurring in social influence. For a state of reactance to occur a few things are important. The person with the state of reactance needs to have a freedom of choice, reactance as a state only occurs if other forces e.g. people,

threaten the person to give up his freedom. A state of reactance can also occur because of negative emotions and cognitions like anger which are generated by promotional messages (Dillard and Shen, 2005). Control is also an important aspect of reactance, whereas control is the ability to affect one's outcomes, which means the person also has freedom of choice (Fogarty, 1997).

Further it must be noted that if the cost of resistance is higher than the motivation to restore freedom, than reactance will not be high. Reactance as a phenomenon also will not take place if the choice of freedom is lost as opposed to only threatened (Miron and Brehm, 2006). In relation to this study it is also the case that specific features of messages may increase or decrease reactance. Reactance theory explains why persuasive messages do not have their intended effect (Quick, Shen and Dillard, 2013).

Specific features of messages in relation to reactance has been studied widely. According to Dillard and Shen (2005) messages should at least take account of three dimensions. The first is explicitness, which can be described as the degree to which language of the messages clarifies the intent of the message. Secondly dominance, which they describe as the degree to which the source of the message exacerbates control over the message recipient. At last is reason, which is described as justification of the message, in terms of which the message recipient should adopt the position of the source (Dillard & Shen 2005). Reactance Theory has shown that specific features of messages like a loss frame, guilt appeal or forceful language can increase a state of reactance (Reinhart, Marshall, Feeley and Tutzauer, 2007; Quick and Considine, 2008; Quick, Kam, Morgan, Montero Liberona and Smith, 2015; Zemack-Rugar et al, 2017).

In other studies compliance and reactance have been investigated in the field of mental health. For instance, in medical health, prescribed medical recommendations cause pressure to comply, this is seen as a threat to freedom, and thus can increase reactance (Fogarty, 1997). But also, in voting this effect has been studied. Social pressure messages invoke pressure to comply in voting campaigns, which cause reactance when these messages also cause anger, yet these social pressure messages can also have a positive effect (Murray and Matland, 2015).

## 2.5 Exercise activity as a moderator

It is important to understand how assertive messages influence intention to exercise in relation towards the exercise activity of a person. Research on this topic is scarce, the impact of assertive messages regarding exercise activity has to my knowledge not yet been studied. To determine how exercise activity influences responses towards an assertive message it is important to look at what type of relationship the message advocates. In the study of Zemack-Rugar et al (2017) the focus was put on brand relationships which had a commercial identity. In this study they found that consumers who have a commitment to a brand react negatively towards an assertive ad. In their study this was because it made people feel more

guilty when they do not comply. In brand relationships guilt leads to pressure to comply and therefore reactance. A guilt appeal in a brand relationship can be observed by people as an overt persuasion attempt, which raises suspicion of the intention of the brand because of their commercial entity (Zemack-rugar et al, 2017).

In this study however, a neutral message will be used instead of a message with commercial intent. Therefore, according to theory of (Baumeister, Stillwell and Heatherton, 1995; Zemack-Rugar et al, 2017) it is expected that if a neutral assertive message is used, it will have a positive effect on the intention to exercise in highly active exercisers. The reason for this is because a neutral message will not contain commercial influences and therefore will not be perceived as a fake guilt appeal.

# 3. Conceptual model and hypotheses

In this section hypothesises will be formulated based on prior research in the field of persuasive messages.

An assertive message that leads to pressure to comply may cause reactance. This has been shown in various studies (e.g. Wilson and Kunkel, 2000; Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine 2008; Kronrod et al, 2012; Zemack-Rugar et al, 2017). The study of Zemack-Rugar et al (2017) is an exemplar study for the current research. Committed consumers in their study have found to have strong compliance norms. These compliance norms increase pressure to comply, which increases reactance. Zemack-Rugar et al (2017) argue that these compliance norms raise guilt in a consumer, which is what drives this aspect of non-compliance. Due to commercial influences in the persuasive message consumers observe guilt as an overt persuasion attempt. In relation to this study, assertive language, reactance, and the promotion of exercise through persuasive messages has been studied earlier by Quick and Considine (2008). As mentioned, assertive language decreased message persuasiveness of an exercise persuasive message. The difference for this study will be how a respondent's exercise activity will influence intention to exercise when using assertive language. Since this study will use a neutral assertive message, with no commercial intentions. It is therefore expected that a person who is heavily involved with exercise will respond positive to an assertive message, because this will not be perceived as an overt persuasion attempt.

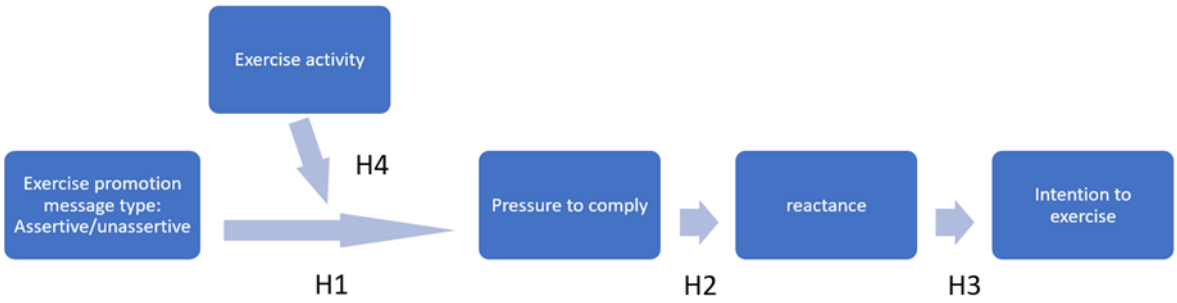


Figure 1 Conceptual model and hypotheses

It is expected that assertive ads cause pressure to comply, because assertive ads tell the person to do something. Therefore, the first hypothesis:

H1: Compared to being exposed to an unassertive ad, being exposed to an assertive ad will lead to higher pressure to comply

The second hypothesis is based on other studies like that of (Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008; Zemack-Rugar et al, 2017). This hypothesis is about pressure to comply and reactance. According to the studies in the theoretical framework, assertive language, and pressure to comply will be perceived as a threat to freedom of choice, which causes reactance therefore, the second hypothesis:

H2: The more pressure to comply the higher the reactance

The third hypothesis is about reactance and intention to exercise. As is shown in different studies (Wilson and Kunkel, 2000; Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008; Kronrod et al, 2012; Zemack-Rugar et al, 2017), assertive messages are perceived negatively, because assertive messages cause reactance towards the message and therefore behaviour change will not occur. Based on this expectation the third hypothesis:

H3: The higher the reactance, the lower the intention to exercise

The last hypothesis is about the moderating effect of habitual exercise activity. People who exercise a lot may have different perspectives on messages that aim to encourage exercise than people who exercise less therefore, the last hypothesis:

H4: Adults who are active exercisers will respond more positively to assertive messages compared to adults who are low active exercisers.

# 4. Method

## Design

To answer the main research question and the four hypotheses an online experiment was executed. An independent variable (Message type) was manipulated, to check what the outcome was on the dependent variable (intention to exercise) explained through the mediators (pressure to comply, reactance). Another reason for an online experiment was

because of the recent Covid-19 virus outbreak. The virus made it impossible to do a face-to-face experiment and due to safety reasons, an online experiment was chosen to secure the health of the respondents. Participants were randomly assigned to either a control condition or an intervention condition. The participants in the control condition watched a persuasive message that did not contain assertive language. The participants in the intervention condition watched a persuasive message that did contain assertive language. These persuasive messages were adapted from work of Miller et al (2007); Quick and Considine (2008). The extent to which people are habitually exercising was used as a moderator.



**Control condition poster** **Assertive condition poster**

(There were 2 other posters, these can be found in the Appendix)

**Participants**

Respondents were recruited through various platforms. Social media is a powerful tool to reach out to all kinds of different people therefore, social media was used as the main tool to gather respondents. Next to social media, forums were used as these forums had large populations and it was a good way to reach out to different kind of people who differ in their exercise activity. There were some criteria for the respondent sample. First, respondents existed out of an adult population starting from age 16. Secondly, the respondent sample

consisted out of Dutch respondents. The research itself took place in the month June of 2020.

**Procedure**

For this research, a questionnaire was made (Appendix), which contained questions regarding the various variables, mediators and moderators. The questionnaire was made anonymous and participants had to provide informed consent to participate. The questionnaire firstly contained questions to screen the participants (e.g. questions about age). Afterwards, participants were asked questions regarding exercise activity to divide the participants in low active and active exercisers.

Subsequently, participants were randomly assigned to either the control group or the intervention group. Both groups were exposed to 2 posters (4 in total) which contained either an unassertive persuasive message (control group) or an assertive persuasive message (intervention group). These persuasive messages contained about 100 words and the whole intervention was related towards exercise. After being exposed to the intervention, questions about the measures (mediators and outcome variable) were asked to research the effect of the intervention on the outcome.

**Measures**

*Dependent variable: Intention to exercise*

To measure the outcome, which is intention to exercise, the following statements were used. Questions about intention were: 'In the coming week I intend to do light active exercise for more than 15 minutes', 'In the coming week, I intend to do moderate exercise for more than 15 minutes', 'In the coming week, I intend to do strenuous exercise for more than 15 minutes'. These questions were measured through respondents reporting off the amount of times (in numbers) they intended to perform respective exercise activities in the coming week.

*Mediator: Pressure to comply & Reactance*

*Pressure to comply*

To measure the mediating role of pressure to comply, 3 items from prior work were used (Dillard and Shen, 2005; Pavey and Sparks, 2009; Zemack-Rugar et al, 2017). These items were measured through a 5-point Likert scale. The following 3 items were used: ('I felt the poster was attempting to dictate my behaviour', 'I felt like the poster and the message was trying to make me do what I wanted', 'I felt pressured to take a certain action given the message of the poster'). Initially Cronbach's alpha with these 3 questions was (0.304). By deleting the item 'I felt like the poster and the message was trying to make me do what I wanted' of pressure to comply as a construct Cronbach's alpha is (0.660), which was considered sufficient.

*Reactance*

Subsequently, the mediating role of reactance was measured. Reactance was measured by a 5-point Likert-scale. To assess the role of reactance, a commonly used (Miller et al, 2007; Reinhart et al, 2007; Zemack-Rugar et al, 2017) measure is to ask questions about how much they liked the poster and persuasive message. To measure if reactance has occurred, questions were asked about threat to freedom and autonomy: ( 'The message on the poster threatened my freedom of choice', 'The poster tried to make a decision for me', 'The poster tried to manipulate me', 'The message on the poster tried to pressure me'). Since reactance can also occur because of cognitions therefore, it was also important to ask questions regarding emotions: ('Did you feel angry when you saw the message on the poster?', 'Did you feel annoyed when you saw the message on the poster?', 'Did you feel irritated when you saw the message on the poster?' ). These questions together as a construct of reactance had a Cronbach's alpha of (0.897) and were adapted from work of Dillard and Shen (2005).

*Moderator: Exercise activity*

To measure the moderating role of exercise activity, Godin's leisure-time exercise questionnaire (GLTEQ) (Godin, 2011) was used. The GLTEQ has 3 separate sections for intensity, divided in strenuous (e.g. jogging, football), moderate (e.g. tennis, badminton), and light exercise (e.g. archery, bowling). A respondent had to fill in how many times in a week they did these kind of exercise intensities for more than 15 minutes. Afterwards, each specific section had a multiplier to compute an activity score, being 9 for strenuous exercise, 5 for moderate exercise and 3 for light exercise. The total activity score could then be checked through a scale. This scale divides activity according to the computed score, 24 units or more is interpreted as active, 14-23 units is interpreted as being moderately active and less than 14 units is interpreted as insufficiently active. For simplicity, instead of the three activity categories Godin used, everything below a score of 23 was counted as low active and everything above as active. In a paper of Amireault and Godin (2015) when proving the validity of their questionnaire, they also used a cut-off point of 23 to classify adults as insufficiently active therefore, 23 was also used in this study as a cut-off point. Further explanation of the GLTEQ is given in the Appendix.

**Data analysis**

To analyse the data a program called 'SPSS' was used to test for significant results. To test for reliability, Cronbach's alpha was executed in SPSS. By computing Cronbach's alpha, a check was done to see if the questions about mediators were perceived as one construct. A Cronbach alpha > 0.7 is perceived as an acceptable value. Through an Analysis of variance (ANOVA) results were tested for significance. In experimental research an ANOVA is used to test for differences between groups. Thus, an ANOVA was used to check if the difference between the control group and intervention group were significant by comparing group means. It was also examined whether randomization of participants in terms of age and gender was successful by an ANOVA and Chi-square. A two-way ANOVA was also used to

test for main effects and interaction effects. To test the relation between pressure to comply and reactance (H2) and reactance and intentions to exercise (H3) a Pearson correlation was computed. By computing a Pearson correlation, it was tested if the constructs are positively correlated (Field, 2013). For the significance level an alpha of 0.05 was taken to test for significance.

**Data**

Respondents who have filled in 'no' as their answer regarding intentions and activity, were evaluated as '0', because it is likely that respondents that filled in 'no' meant that they are not intending to exercise or have exercised.

# 5. Results

Before analysing the data, questionnaires with missing values were removed, leaving 140 respondents in the dataset.

**Descriptive statistics**

After removing outliers with the 2.2 IQR (interquartile range) factor rule (Hoaglin and Iglewicz, 1987), 136 of the 140 respondents remained in the sample. This rule is used by using the difference between the 1$^{e}$ and 3$^{e}$ quartile and multiplying it by 2.2 and subtracting it from the respective quartiles. This way outliers can be found, Hoaglin and Iglewicz (1987) have found after fine tuning that the original 1.5 rule was inaccurate 50% of the time and suggested that 2.2 is more valid in a lot of cases.

**Table 1 Descriptives**

| | | Group | | |
|---|---|---|---|---|
| | | Assertive Poster | Control | Total |
| What is your gender? | Man | 19 | 24 | 43 |
| | Women | 50 | 43 | 93 |
| Total | | 69 | 67 | 136 |

| Pearson chi-square: Gender & Groups | Chi-square | P-value |
|---|---|---|
| | 1.08 | P=0.30 |

| Age | Youngest | Oldest |
|---|---|---|
| Mean(SD): 30.66 (14.94) | 16 | 76 |

The assertive poster group consisted out of 69 respondents and the control group contained 67 respondents. Of the 136 respondents in the sample, 68.4% was female (93 respondents) and 31.6% was male (43 respondents). The assertive poster group contained 19 male and 50 female respondents, the control group contained 24 male and 43 female respondents. The youngest participant was 16 and the oldest 76, with a mean age of 30.66 (14.94 SD), of 1 participant the age was missing. The mean age of the intervention group was 31.25 and of the control group 30.12.

From a one-way ANOVA it can be concluded that between groups there was no significant difference in age (F(1) = 0.19; p = 0.67)

A Pearson chi-square test between gender and group revealed that the difference in gender across groups was not significant (X2 = 1.08, p = 0.30).

**Main analyses of hypotheses**

The first hypothesis compared the assertiveness of the messages and if this had an influence on pressure to comply. To test if pressure to comply can be related towards assertive messages, it is important to look for significant results between group means. Recall that:

*H1: Compared to being exposed to an unassertive poster, being exposed to an assertive poster will lead to higher pressure to comply*

An ANOVA was computed to test for significance. The ANOVA of the construct of pressure to comply revealed that the results was significant between groups ($F(1) = 18.88$; $p < 0.001$). The mean and standard deviation for the assertive poster group was ($M = 3.60$, $SD = 1.07$). The mean and standard deviation for the control group was ($M = 2.87$, $SD = 0.89$).

**Table 2 one-way ANOVA H1**

| | Assertive Poster Condition | Control Condition | | | |
|---|---|---|---|---|---|
| **Construct** | **Mean (SD)** | **Mean (SD)** | **df** | **Test statistic** | **P-value** |
| Age | 31.25 (15.64) | 30.12 (14.45) | 1 | F=0.19 | P=0.67 |
| Effect of condition on: Pressure to Comply | 3.60 (1.07) | 2.87 (0.89) | 1 | F=18.88 | P=0.001 |
| Effect of condition on: Reactance | 3.28 (0.94) | 2.44 (0.74) | 1 | F=33.65 | P=0.001 |

***. The mean difference is significant at the .05 level**
***. Measured by a 5-point scale (range 1-5)**

For the second hypothesis, it was expected that if a respondent feels more pressure to comply, they also have higher reactance. Therefore, a Pearson correlation was computed to see if pressure to comply positively correlates with reactance. Recall that the second hypothesis was:

*H2: The more pressure to comply the higher the reactance*

A Pearson correlation revealed that pressure to comply and reactance were positively correlated ($R=0.65$, $p<0.001$, see table 3 below).

**Table 3 Correlations H2 & H3**

| **Correlation between constructs: Pressure to comply and Reactance** | | Reactance | Pressure | Intention to exercise |
|---|---|---|---|---|
| Reactance | Pearson Correlation | 1 | .65** | -.10 |
| | Sig. (2-tailed) | | .001 | .26 |
| | N | 136 | 136 | 136 |
| Pressure | Pearson Correlation | .65** | 1 | .01 |
| | Sig. (2-tailed) | .001 | | .90 |
| | N | 136 | 136 | 136 |
| Intention to exercise | Pearson Correlation | -.10 | .01 | 1 |
| | Sig. (2-tailed) | .26 | .90 | |
| | N | 136 | 136 | 136 |

****.Correlation is significant at the 0.01 level (2-tailed)**

When respondents feel reactance, it was expected that intentions to exercise are lower. Therefore, a Pearson correlation was computed to test if there is a correlation between reactance and lower intentions to exercise.

Recall that the third hypothesis was:

*H3: The higher the reactance, the lower the intention to exercise*

The Pearson correlation revealed a very slight negative correlation (-0.098) with a p-value of (0.26) meaning that it is not significant (0.26>0.01, see table 3).

To test if active exercisers respond differently from low active exercisers in relation towards assertive messages (i.e. moderation effect of exercise) a two-way ANOVA was computed.

Recall that the fourth hypothesis was:

*H4: Adults who are active exercisers will respond more positively to assertive messages compared to adults who are low active exercisers*.

**Table 4 Descriptive Statistics H4**
**Dependent Variable: Pressure to Comply**

| Low active/ active | Group: Assertive Poster/Control | Mean | Std. Deviation | N |
|---|---|---|---|---|
| Low active | Assertive Poster | 3.53 | 1.09 | 31 |
| | Control | 2.85 | .94 | 24 |
| | Total | 3.24 | 1.08 | 55 |
| Active | Assertive Poster | 3.66 | 1.06 | 38 |
| | Control | 2.87 | .88 | 43 |
| | Total | 3.24 | 1.04 | 81 |
| Total | Assertive Poster | 3.60 | 1.07 | 69 |
| | Control | 2.87 | .89 | 67 |
| | Total | 3.24 | 1.05 | 136 |

Descriptives for hypothesis 4 are given in the table to the left.

The two-way ANOVA revealed that there was no main effect for exercise activity before the intervention (F(1)= 0.17 ; p = 0.68). A main effect however has been found for condition (Control/Assertive poster) on the dependent variable: pressure to comply (F(1) = 17.58; p < 0.001). The interaction effect between condition and exercise activity before the intervention: (F(1)= 0.10; P= 0.76). This indicates that H4 has to be rejected based on this data.

**Table 5 Tests of Between-Subjects Effects H4**
**Dependent Variable: Pressure to comply**

| Source | df | Test statistic | P-Value | $\eta_p^2$ |
|---|---|---|---|---|
| 1.Low active/active | 1 | F= 0.17 | P=0.68 | 0.001 |
| 2.Control/Assertive poster | 1 | F= 17.58 | P=0.001 | 0.12 |
| 1*2 | 1 | F= 0.10 | P=0.76 | 0.001 |
| **a. R Squared = 0.13 (Adjusted R squared = 0,11)** | | | | |

**Additional analyses**

An ANOVA (see table 2) revealed that between groups for the construct of reactance the result was significant (F(1) = 33.65; p < 0.001). The mean and standard deviation for the construct of reactance for the intervention group were (M = 3.28, SD= 0.94) and for the control group (M = 2.44, SD= 0.74).

# 6. Conclusion & Discussion

This research tried to seek an answer to the research question: What effect does the assertiveness of an exercise related promotion message have on the intention to exercise? To research this question, a quantitative research has been executed in the form of an online experiment. The first hypothesis compared an unassertive poster with an assertive poster, and it was hypothesised that an assertive poster will lead to higher pressure to comply. From the results of the study it can be concluded that an assertive poster indeed causes higher pressure to comply to the message that was on the poster when compared to an unassertive poster. Meaning that the poster that tells you to do something causes more pressure to comply with the message instead of a poster that is very friendly and leaves options open. The first hypothesis is accepted, the results match what was expected with the first hypothesis. The questions were adapted from work of Zemack-Rugar et al (2017), they also found that assertive messages cause pressure to comply, in this study the case is very similar.

It was than further hypothesised that people who feel more pressure to comply also have a higher level of reactance. The assertive poster gave respondents a feeling that they must do something and that they must comply and that their freedom of choice is taken away. The results showed that as respondents feel more pressure to comply towards an assertive message in the poster, than reactance towards that message is also higher in those respondents. Meaning that the respondents who feel that they must comply to the poster also feel that they must engage into freedom restoring behaviour and reject the assertive message in the poster. These results match the hypothesis, because of the high reliability of reactance as a construct in this study, it was expected that respondents who read the assertive persuasive message, also elicited reactance. In previous studies (Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008), they also found that assertive messages elicited reactance. These results match those of other studies, the questions were adapted from Dillard and Shen (2005), who also had significant results. The persuasive messages were adapted from the work of Miller et al (2007) and Quick and Considine (2008).

The third hypothesis hypothesised that respondents who scored high on reactance have lower intentions to exercise. Reactance causes freedom restoring behaviour in a person, when the poster tells you to do something it was expected that high levels of reactance causes people to reject the message on the poster and thus also have lower intentions to exercise, because adherence to the poster is expected to be low. From the results it can be concluded that this was not the case. An assertive message on a poster about exercising which causes reactance according to the second hypothesis does not lower intention to exercise in respondents. These results were not as expected, it was expected that because reactance was elicited, freedom restoring behaviour would occur to counter reactance. Previous studies (Brehm, 1966; Miron and Brehm, 2006) have described that reactance causes respondents to reject the threat, intentions to exercise would be lower, purely because of increased reactance levels and in previous studies (Quick and Considine, 2008;

Zemack-Rugar et al, 2017) they found that reactance has a negative effect on message persuasiveness.

A possible explanation for this effect might be that other studies (Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008) have investigated primarily messages persuasiveness, whereas this study investigated a specific action that had to be taken.

Roubroeks, Ham and Midden (2011) investigated the effect of social agency on reactance. Their results showed that there was more reactance when using a video with a moving robotic agent instead of when using a still picture with a message with of the same robotic agent depicted on it. In this study, a poster was used with an assertive persuasive message, this resembles a still picture and could be a possible explanation for the results. Another possible explanation can be depicted from the study of Reinhart et al (2007), where they found that gain-framed messages cause more positive message reactions than loss-framed messages. The assertive poster in this study used gain-frames by telling respondents that exercising is good for their health. The gain-frame could have caused the effect that respondents still had the feeling that exercising would benefit them and therefore the effect of the assertive language could have been mitigated.

At last it was hypothesised that exercisers who were already active exercisers in their current situation will respond more positively to assertive messages than exercisers who are not active. The results however indicated that this was not the case. A main effect for condition on pressure to comply was found significant, this result can also be found in hypothesis 1. A main effect for exercise activity on pressure to comply was not found. Whether someone is low active / active does not seem to influence pressure to comply. Therefore, active respondents do not see assertive messages more positively than low active respondents. An interaction effect was also not found, between condition (control/assertive) and exercise activity (low active / active) it does not seem that the effect one of these independent variables have on pressure to comply changes by the other variable. The condition of the respondents, therefore, do not seem to influence the effect exercise activity has on pressure to comply. These results do not match the expectation of the hypothesis. It was expected that because active exercisers are more involved with exercise already, that they would have a more positive reaction than people who have a lesser connection with exercise.

An explanation for this is that pressure to comply and reactance as constructs both had significant results. The poster caused reactance in adults. According to the studies in the theoretical framework of this study, reactance causes adults to reject the message. In those (Dillard & Shen, 2005; Miller et al, 2007; Quick and Considine, 2008) studies, they did not make a difference in terms of connections to the topic between adults and found that reactance was elevated. The posters used a lot of assertive language in an extreme fashion. Therefore, the adults in the population of this study possibly had a high negative reaction towards the message and did not react more positively than low active exercisers.

Another possible explanation for this effect is that the ratio of low active / active was inaccurate to represent a random sample size. When using the Godin's leisure time questionnaire, students and athletes are excluded, yet in this study this has not been done. 63.7% of the sample size is between 16 and 25. Younger persons generally are more active than older persons are. In relation to this, in a study of (Hong, Giannakopoulos, Laing and Williams, 1994) they examined reactance across age and hypothesized that as age increases, reactance decreases. In their study a significant difference was found between age groups of (18-23, 24-29 and 30-40). Their results showed that the youngest group had the most reactance. This could be a possible explanation, because in this study a lot of young people participated and if this group had the most reactance than it is likely that they react less positive. If this is a possible explanation for the effect, then it would be interesting to see what the effect would have been with a normally distributed adult population.

The effect that an assertive exercise related promotion message has is that it does not lower intention to exercise as was expected. It was expected that because pressure to comply raises reactance, that respondents would reject the message and thus have lower intentions to exercise. The results however show that this is not the case and that an assertive exercise related message does not influence intention to exercise. Apart from this result, the results however have showed that assertive messages cause pressure to comply towards this message and that this pressure in turn causes people to have higher levels of reactance. The respondents feel reactance, but instead of rejecting the message to exercise it seems that intentions do not change. Also, when commercial influences are used the assertive persuasive message will be an overt persuasion attempt. In this study this was not the case and thus it was expected that people who are low active respond more negatively. Yet active adults did not respond more positively to assertive messages than low active adults according to the results.

**Limitations**

Studies on assertive messages and their influence on intention to exercise is rather scarce. An exemplar study has not been found. The lack of studies that have investigated the same research topic as this one, could have clarified a lot.

Another limitation might be the use of the assertive message in the poster. These were adapted from prior work but translated to Dutch. A lot of the same assertive phrases were used, and the message was not ordinary but a bit extreme in the level of assertive language usage. Also, a lot of gain-frames were used which can influence the results, since a gain-frame could have mediated the effect of reactance, because respondents react more positively to the message, when using a gain-frame.

63.7% of the sample is 25 years old or younger, this has an impact on the results, since younger people generally are more active than older people. A large sample that is active influences the results, because if those people already where very active than assertive messages might lower their intentions, but not below the threshold of what is being perceived as active by Godin's questionnaire. As explained earlier, younger aged

respondents can also influence the results, because their reactance levels are higher than those of older respondents.

Kronrod et al (2012) found that assertive message usage yields greater compliance when message receivers perceive an issue as important, however when a general audience is the target less assertive language should be used. This could be an explanation for why reactance did not lower intention to exercise. A lot of young people are active, and exercise is important for them. If the younger respondents did regard exercise as an important issue, than compliance with the message could have been greater. Greater compliance with the message could have mitigated the effect reactance had on intention to exercise.

Lastly, attention might have been an important factor. In the questionnaire, it was not measured if people kept attention to the questionnaire by asking attention questions. Also, questionnaires that were filled in faster than was priorly expected, were not checked for extreme results.

**Implications & recommendations**

Assertive messages influence pressure to comply and reactance. In earlier studies (Dillard and Shen, 2005; Miller et al, 2007; Quick and Considine, 2008; Zemack-Rugar et al, 2017) Assertive messages or forceful language have been found to elicit reactance in adults. This study has as an implication that it replicates the effect that assertive messages have on eliciting reactance.

However, reactance does not lower intentions to exercise, as has been found in the results. Other studies that have measured reactance often have found low compliance with the message. Instead of investigating if compliance is reduced, in this study it is investigated if it has implications on a person's actions (e.g.) lower intention to exercise. Pressure to comply that elicits reactance does not lower intention to exercise. As a recommendation I would not recommend using assertive messages when convincing adults to exercise. However, in some cases it could be appropriate to use assertive messages, when used mildly. This study also tried to extend the literature by investigating if there is a difference between low active exercisers and active exercisers in their response towards assertive messages, an effect has not been found. Therefore, I would not distinguish using these messages between adults who are inactive as opposed to active.

Most studies have investigated the impact of persuasiveness of the message and compliance, for further studies It is recommended to investigate if reactance really has an impact on taking specific actions (e.g. exercising or shopping for instance) and not only persuasiveness or adoption/rejection of the message. It would be more interesting to investigate what the effect of reactance really is, not only on persuasiveness of the message, but also adherence. For further research purposes it is also recommended to see what the difference between usage of a gain/loss frame has as an effect. This study has also found what other studies have found, assertive messages increase reactance, but the effect of reactance on intentions is an interesting topic to investigate.

As an implication for practice, I would not recommend using assertive messages for exercise purposes. A reason for this implication is that, pressure to comply and reactance were both significant when used with reliable measures that have been used before. Together with findings of previous studies and the explanations given of why assertive messages probably did not lower intention to exercise, it is still not recommended to use assertive messages. It is more probable that they have a negative effect as opposed to a positive effect when looking at all the evidence.

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# Appendix

Godin-Leisure time Exercise Questionnaire (GLTEQ).

To further explain the GTLEQ a short example will be given. If a person does perform 1 time a week of strenuous exercise, 2 times a week of moderate exercise and 1 time a week of light exercise, for more than 15 minutes each, than the person's score will be (activity score): (9 * 1) + (5 * 2) + (3 * 1) = 22. A score of 22 is perceived as being moderately active (Godin, 2011). In another study of Amireault and Godin (2015) evidence for validity was provided for classifying healthy adults into active and insufficiently active. In this study the results showed that, respondents classified as active had lower body fat percentages and higher oxygen consumption during exercising compared to those in the inactive group. These results were also linked with the respondents because the respondents classified as active also reported more moderate-to-strenuous exercise activity days/wk. Amireault and Godin (2015) therefore concluded, that validity evidence was supported.

# Questions of the survey (Dutch)

## Intention to exercise

De komende week ben ik van plan om meer dan 15 minuten lichte lichaamsbeweging te doen. (Bijvoorbeeld: wandelen, yoga, boogschieten, vissen, bowlen, golf) (Vul het aantal keer in)

De komende week ben ik van plan om meer dan 15 minuten matige lichaamsbeweging te doen. (Bijvoorbeeld: honkbal, tennis, snel lopen, skiën, volleybal) (Vul het aantal keer in)

De komende week ben ik van plan om meer dan 15 minuten zware lichaamsbeweging te doen. (Bijvoorbeeld: hardlopen, voetbal, basketbal, wielrennen, judo) (Vul het aantal keer in)

## Pressure to comply

Geef aan in hoeverre u het oneens/eens bent met de volgende stelling:

| | helemaal mee oneens | oneens | neutraal | mee eens | helemaal mee eens |
|---|---|---|---|---|---|
| Ik had het gevoel dat de posters mijn gedrag probeerde te dicteren | ○ | ○ | ○ | ○ | ○ |
| Ik had het gevoel dat de posters en de boodschap ervan probeerde me te laten doen wat ik wilde | ○ | ○ | ○ | ○ | ○ |
| Ik voelde me onder druk gezet om een bepaalde actie te ondernemen gezien de boodschap van de posters | ○ | ○ | ○ | ○ | ○ |

## Reactance

Geef aan in hoeverre u het oneens/eens bent met de volgende stellingen:

| | helemaal mee oneens | oneens | neutraal | mee eens | helemaal mee eens |
|---|---|---|---|---|---|
| De boodschap op de posters bedreigde mijn keuzevrijheid | ○ | ○ | ○ | ○ | ○ |
| De boodschap op de posters probeerde een keuze te maken voor mij | ○ | ○ | ○ | ○ | ○ |
| De boodschap op de posters probeerde mij te manipuleren | ○ | ○ | ○ | ○ | ○ |
| De boodschap op de posters probeerde druk op mij uit te oefenen | ○ | ○ | ○ | ○ | ○ |

Geef aan in hoeverre u zich boos voelde

| | helemaal niet boos | niet boos | neutraal | boos | heel erg boos |
|---|---|---|---|---|---|
| Voelde u zich boos toen u de boodschap op de posters zag? | ○ | ○ | ○ | ○ | ○ |

Geef aan in hoeverre u zich geërgerd voelde

| | helemaal niet geërgerd | niet geërgerd | neutraal | geërgerd | helemaal geërgerd |
|---|---|---|---|---|---|
| Voelde u zich geërgerd toen u de boodschap op de posters zag? | ○ | ○ | ○ | ○ | ○ |

Geef aan in hoeverre u zich geïrriteerd voelde

| | helemaal niet irritant | niet irritant | neutraal | irritant | heel erg irritant |
|---|---|---|---|---|---|
| Vond u de boodschap op de posters irritant? | ○ | ○ | ○ | ○ | ○ |

## Sportactiviteit Godin als moderator

Hoeveel keer per week (in uw huidige situatie) doet u aan lichte lichaamsbeweging (minimale moeite) voor meer dan 15 minuten? (Bijvoorbeeld: wandelen, yoga, boogschieten, vissen, bowlen, golf)

Hoeveel keer per week (in uw huidige situatie) doet u aan matige lichaamsbeweging (niet heel erg vermoeiend) voor meer dan 15 minuten? (Bijvoorbeeld: honkbal, tennis, snel lopen, skiën, volleybal)

Hoeveel keer per week (in uw huidige situatie) doet u aan zware lichaamsbeweging voor meer dan 15 minuten? (Bijvoorbeeld: hardlopen, voetbal, basketbal, wielrennen, judo)

## Algemene vragen

Wat is uw leeftijd? (in getallen)

Wat is uw geslacht?

- ○ Man
- ○ Vrouw

## Posters


**Control condition poster**


**Assertive condition poster**