

THE EFFECTS OF METAPHOR APTNESS AND DISEASE FAMILIARITY ON  
MOTIVATION TO RESIST PERSUASIVE VACCINATION COMMUNICATION

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## Abstract

Anti-vaccination movements have been a reason to create persuasive vaccination communication. While metaphors have been shown to have persuasive effects, it should also be considered if aspects such as low metaphor aptness could contribute to resistance of vaccination communication. Additionally, it was investigated whether this differs between familiar and unfamiliar diseases. A between-subjects experiment was conducted in which the participant read a text that described the flu or tick-borne encephalitis (TBE) and contained either no metaphor, a low aptness metaphor, or a high aptness metaphor. Participants then filled out questions that measured motivation to resist persuasion (MRP). The study resulted in significantly higher MRP for TBE than the flu when the text contained no metaphor, and significantly higher MRP for the flu than TBE when the text contained a highly apt metaphor. The less apt metaphor showed no differences in MRP between the flu and TBE. The results were not in line with previous research, but plausible explanations may be found with the effects of processing fluency, risk perception, or communicator credibility.

*Keywords:* vaccination communication, metaphor aptness, disease familiarity, motivation to resist persuasion, MRP

## THE EFFECTS OF METAPHOR APTNESS AND DISEASE FAMILIARITY ON MOTIVATION TO RESIST PERSUASIVE VACCINATION COMMUNICATION

The invention of vaccines has been one of the greatest contributions to global health in history (Center for Disease Control and Prevention, 1999). The first vaccination programs started at the end of the nineteenth century and by the late 1950s, many common childhood diseases were no longer a major health problem. Eventually, widespread vaccination coverage has led to the (near) eradication of infectious diseases such as smallpox and polio. Although the implementation of vaccination programs has clearly shown to be effective, vaccination has always encountered waves of opposition (Greenwood, 2014).

Recently, there have been trends of anti-vaccination movements in Western countries, leading to resurgences of diseases that had already been considered eradicated, such as the measles (Hussain, Ali, Ahmed, & Hussain, 2018). One of the factors fueling this movement is the increased access to medical information online, which has made patients feel more empowered and less easily influenced by physicians or medical institutions (Forkner-Dunn, 2003). However, this feeling of empowerment can have negative effects when patients' beliefs are based on misinformation. A Canadian study showed that 60% of the top search results on immunization led to anti-vaccination websites and blogs (Seeman, Ing, & Rizo, 2010), and misinformation has been shown to be prevalent on those platforms (Kata, 2010).

In order to oppose the anti-vaccination movement, there is a strong need for effective health communication. The Strategic Advisory Group of Experts on Immunization (SAGE) Working Group on Vaccine Hesitancy (WG) reported in 2014 that poor communication on vaccination can result in vaccination hesitancy regardless of the setting (World Health Organization, 2015). Considering the skepticism around vaccinations and the amount of misinformation available online,

it is important that the correct information is accepted as true by the general public. Therefore, it is important that pro-vaccination messages are more persuasive than anti-vaccination messages. To do so, vaccination campaigns should take into account the effects of word choice on persuasiveness of the message. This can be done by paying attention to literary devices such as metaphors.

Metaphors have been shown to increase the persuasiveness of a message, compared to literal descriptions of the same message (Van Stee, 2018). Although the persuasive effects of metaphors have been studied extensively, research mainly took place in the field of advertising. Van Stee's meta-analysis of the persuasive effects of metaphorical messages vs. literal messages (2018) showed that there are too few studies on the topic health communication to generalize the results. It is clear that metaphors can have strong effects on persuasion, but will these effects be as positive in health communication as in advertising? Or would it result in an adverse outcome? Considering the recent trends of unwillingness to vaccinate, it is interesting to search for elements of health communication that contribute to resistance of the message. Therefore, the present study seeks to investigate the role of metaphors in the resistance of vaccination communication.

## Literature review

Ongoing waves of vaccination opposition have created a demand for effective communication action (Obregón et al., 2009). Goldstein, Macdonald, and Guirguis (2015) listed factors of health communication that influence the willingness to vaccinate. They concluded that pro-active communication is necessary, communication should be a two-way process, and different communication models and tools are appropriate for different situations. However, not only the communication strategy provides room for persuasive elements, but also the message content. A widely discussed topic in vaccination communication is framing, although results have been inconsistent across studies and are often dependent on external factors (Pența & Băban, 2018). Previously, gain-framed appeals were recommended and considered to be more effective, with slogans like ‘The influenza vaccine will protect your income’ (Webber, 2003). However, recent meta-analyses showed no significant difference in persuasiveness between gain and loss-framed appeals, and even speculated that loss-framed appeals would be more effective, using statements such as ‘If you don't vaccinate your child, your child won't be protected against disease’ (O’Keefe & Jensen, 2007; O’Keefe & Nan, 2012).

Perhaps, this suggests that vaccination communication research would benefit from a shift in focus. Metaphor research might yield more consistent results, since studies in other domains already showed that the persuasive effects of metaphor use can be substantial (Van Stee, 2018). For example, metaphors in advertisements led to higher purchase intention, metaphors in criminal reports led to a higher sentence being perceived as appropriate, and metaphors in wildfire reports led to increased perceived severity and risk of the issue among readers (Van Stee, 2018; Vasquez, Loughnan, Gootjes-Dreesbach, & Weger, 2014; Matlock, Coe, & Westerling, 2017). Some experimental research suggests that the use of metaphors is also effective in vaccination

communication, resulting in higher willingness to vaccinate (Scherer, Scherer, & Fagerlin, 2015). The study showed that people who read a message in which the flu was described with a metaphor were more likely to get a flu vaccination than people who read a literal message about the flu.

Lakoff and Johnson's (1980) Conceptual Metaphor Theory (CMT) posits that metaphors are fundamentally related to understanding and thought processing. Metaphors consist of a target domain and a source domain. According to the CMT theory, the target domain is an abstract concept that is difficult to comprehend, while the source domain is concrete and more easily processed. Metaphors take elements from the source domain to describe a concept in the target domain. For example, to report on the prevention of a measles outbreak (target domain), one could use words from the source domain 'war': 'We must win the war against measles'. The choice of source domain is particularly powerful, as it has been shown that the topic that is used to describe the target domain influences the way the message is perceived (Ottatti, Renstrom, & Price, 2014). Any associations the reader has with the word choice of the metaphor (source domain) are - to some extent - projected onto the content of the message (target domain). Consequently, using a source domain with particularly negative or positive associations can have a negative or positive effect on the perception of the message.

With all metaphors, the source domain and target domain have similarities or overlap in meaning. However, the extent to which the source and target domain overlap can differ. This can be measured as the aptness of a metaphor (Jones & Estes, 2006). Aptness of the metaphor can be used to differentiate between different metaphors. In order to categorize a metaphor as apt, the source domain of the metaphor should have a salient feature in common with the target domain. It should also meet the condition that this common feature is relevant to the topic. To illustrate with an example from Jones & Estes (2006): 'That fashion model is a rail' would be an apt metaphor,

with the common feature being their extreme thinness. A less apt metaphor can be illustrated with an example by Glucksberg and McGlone (1999): the source domain 'butcher' can be applied as a metaphor on target domains that share the characteristic 'bungling'. However, there is more overlap with a surgeon who butchers a medical procedure than with a pianist who butchers a classical piece of music. The surgeon would create a bloody mess, causing physical suffering, similarly to a butcher, while the pianist's butchering would only result in artistic suffering. According to Glucksberg and McGlone's (1999) example, 'The pianist is a butcher' would therefore be a less apt metaphor than 'The surgeon is a butcher'. Moreover, the common feature should be relevant to the topic. 'Bungling' a job has more consequences for skilled professionals than for unskilled workers, and thus, 'My filing clerk is a butcher' would also be a less apt metaphor (Glucksberg & McGlone, 1999).

Research in the field of psychology and language showed that aptness influences processing fluency; a highly apt metaphor is more easily processed than a metaphor with low aptness (Blasko & Connine, 1993; Chiappe & Kennedy, 1999; Jones & Estes, 2006). This introduces a scenario in which metaphors would not have a persuasive function, but the opposite: cause resistance. Low processing fluency tends to evoke negative feelings towards the message and could therefore elicit resistance to its content (Briñol, Tormala, & Petty, 2013). Bullock, Colón Amill, Shulman, & Dixon (2019) showed an increased resistance to scientific information when processing fluency was low caused by the use of jargon. Resistance was measured in the form of motivation to resist persuasion (MRP), which refers to a person's motivation to counterargue and oppose the persuasive nature of the message (Nisbet, Cooper, & Garret, 2015).

Since the use of low aptness metaphors has the same effect as jargon (decreased processing fluency), it could also have the same effect on motivation to resist persuasion. Therefore, low

aptness metaphors used in vaccination communication may contribute to resistance of the message content. This leads to the following hypothesis:

*H1: A metaphor with low aptness leads to a higher motivation to resist persuasion than a metaphor with higher aptness.*

For some diseases, persuasion in vaccination communication is more important than for others. For infectious diseases such as the flu, herd immunity is crucial to protect non-immune individuals (Temoka, 2013). In order to protect herd immunity, it is crucial that the vaccination coverage of the population maintains above a certain level – dependent on the infectiousness of the disease (Oldfield & Stewart, 2016). One of the factors that can contribute to a person's decision to get vaccinated is their perceived risk, which is defined as perceived vulnerability to a disease (Janz & Becker, 1984). Park (2012) showed that intention to get vaccinated is significantly higher when a message described a disease to have a high chance of transmission versus when the disease was described to have a low chance of transmission. Familiar diseases like the flu are commonly known to be highly transmissible, so the susceptibility of contracting the disease is high. Patients would then be more likely to be persuaded by vaccination communication for such a disease.

On the other hand, Bond and Nolan (2011) found that perceived risk is generally higher for unfamiliar diseases compared to diseases familiar to the patient, because unfamiliar diseases tend to evoke vivid images of severe outcomes. This would imply that persuasive vaccination communication is not likely to be resisted. It seems that perceived risk can be looked at from different perspectives: on the one hand there is the risk of contracting the disease, on the other hand the risk of severe harm caused by a disease. This would provide arguments for both familiar and unfamiliar diseases to result in either increased or decreased motivation to resist persuasion. The multifaceted aspect of disease familiarity, combined with the lack of research of the effects of

disease familiarity on motivation to resist persuasion leads to its effects being unpredictable. Therefore, an exploratory research question was composed:

*RQ1: What are the effects of familiarity of the disease on motivation to resist persuasion in vaccination communication?*

The present study will investigate the effect of metaphor aptness on vaccination resistance of different types of diseases: familiar and unfamiliar. Metaphors with low aptness tend to cause lower processing fluency than metaphors that are highly apt (Blasko & Connine, 1993; Chiappe & Kennedy, 1999; Jones & Estes, 2006). It is therefore expected that a metaphor with low aptness will lead to a higher motivation to resist persuasion than a metaphor with higher aptness. Familiarity with the described disease can influence risk perception (Bond and Nolan, 2011; Janz & Becker, 1984; Park, 2012). Risk perception can then influence motivation to resist persuasion: the disease that causes lower risk perception is expected to evoke more motivation to resist vaccination persuasion than the disease with higher risk perception. However, it is not yet clear whether a familiar or unfamiliar disease can be expected to cause higher risk perception. Therefore, it is unclear how the effect of metaphor aptness on motivation to resist persuasion will differ between the familiar and unfamiliar disease. To investigate how these factors interact with each other, a second exploratory research question was formulated:

*RQ2: To what extent will the effects of type of metaphor on motivation to resist persuasion be different for a familiar disease versus an unfamiliar disease?*

## Method

To investigate the effects of metaphor aptness and disease familiarity on motivation to resist vaccination persuasion, an experiment in the form of an online survey was carried out.

### Materials

This research measured the effect of type of metaphor and type of disease on motivation to resist persuasion. Type of metaphor was a nominal variable with three levels: a high aptness metaphor, low aptness metaphor, and non-metaphor as a control group. For the high aptness metaphor, words and phrases from the ‘weed’ source domain were used to describe the disease. The definition of weed is “a plant that is not valued where it is growing and is usually of vigorous growth” or “an obnoxious growth, thing, or person” (Merriam-Webster, n.d.). A virus can be defined as “any of a large group of submicroscopic infectious agents that are capable of growth and multiplication only in living cells, and that cause various important diseases in humans, animals, and plants” (Merriam-Webster, n.d.). This metaphor meets the two conditions of an apt metaphor. The common salient feature is that a virus and a weed both cause unwanted growth. This feature is relevant to the topic of disease prevention: the unwanted growth of a virus inside the body is what causes a disease.

As a low aptness metaphor, ‘beast’ was used as a source domain. Beast is mainly defined as “animal”, but can also be defined as “something formidably difficult to control or deal with” (Merriam-Webster, n.d.). While the latter definition could be related to a virus, it is not a shared salient feature across the definitions of both domains. Not all viruses are difficult to control or deal with; most viruses don’t form a major threat to a person’s health and the body will be able to recover without medication (Raff, Alberts, Lewis, Johnson, & Roberts, 2002). Therefore, this is not an inherently salient feature to the definition of the word virus. The effectiveness of these

measures were pretested (see: next section) and a non-metaphor condition was added as a control group in the main experiment.

Additionally, the effect of familiarity of disease was measured. The nominal variable consisted of two levels: familiar disease and unfamiliar disease. Familiar disease was operationalized as influenza (the flu); an infectious disease caused by an influenza virus that affects the respiratory system (“Influenza (seasonal)”, 2018). In the Netherlands, there is a yearly flu epidemic with a duration of nine weeks on average (“Griep & Grieprik”, 2019). Most patients recover without medical assistance, but for elderly and vulnerable people the virus is a serious health threat and can lead to death. Therefore, a yearly flu vaccine is recommended for these high-risk groups. Since the flu is such a common disease in the Netherlands, it was assumed that it would be familiar to our participants.

Unfamiliar disease was operationalized as tick borne encephalitis (TBE), a disease caused by a virus that is transferred from ticks to humans (“Tekencefalitis (TBE)”, 2019). The virus causes meningitis and patients must be hospitalized to recover. For 1-2% of patients, the disease will result in death. Up until recently, the virus could only be found outside of the Netherlands. However, in 2016 the first infections were found in ticks and deer in the Netherlands and a few patients have been infected since. As TBE has only recently been a local disease and very few Dutch patients have been infected, it was expected that the disease would be unfamiliar to our participants. Since TBE is a novel virus in the Netherlands and only affects around 2000 people per year in Europe (“Tekencefalitis (TBE)”, 2019), it was assumed that the participants were notably less familiar with TBE than with the flu.

The stimulus material consisted of a small text reporting on either the flu or TBE. Scherer, Scherer, and Fagerlin (2015) studied the effect of different types of metaphors on perceived risk

of the flu and willingness to vaccinate. The text provided options for both a beast and weed metaphor. Since the present study was so similar to their study, the text from their research was used as a basis but modified. The original text contained two forms of the metaphor, as well as general information about the disease. However, studies have shown that extended metaphors are not necessarily more persuasive than a single metaphor (Reijnierse, Burgers, Krennmayr, & Steen, 2015; Sopory & Dillard, 2002), so the metaphor was mentioned only once in the present stimulus material. The general information about the diseases was specified to the Netherlands to increase participants' sense of involvement with the topic. Since the present study was measuring motivation to resist persuasion, the phrase "Therefore, you really need to get vaccinated against it!" was added to the end of the text as a persuasive element. Without this element, the text was purely informative and lacked any persuasion that could evoke resistance.

Considering the study was conducted in the Netherlands, the text was translated in Dutch in order to recruit a sufficient amount of participants. The definitions of the chosen source domains ('weed' and 'beast') and target domain (virus) were checked in Dutch to ensure that the aptness of the metaphor would remain consistent through translation.

### **Pretest**

A pretest was conducted to measure whether the two different metaphors used in the stimulus material would be perceived differently with regard to aptness. Participants were asked to evaluate both metaphors: "a virus is a beast that preys on the body" and "a virus is a weed that quickly spreads through the body". They were first presented with the metaphor and then asked to indicate to what extent they agreed with three statements about the metaphor on a seven-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The statements were derived from Jones & Estes's (2006) definition of an apt metaphor and resulted in the following items:

- The metaphor seems fitting
- The terms ‘virus’ and ‘beast’/ ‘weed’ have an important common feature
- The terms ‘virus’ and ‘beast’/ ‘weed’ have a common feature that is relevant

The reliability was good for aptness of the beast metaphor ( $\alpha = .86$ ) as well as aptness of the weed metaphor ( $\alpha = .95$ ). This means the conceptualization of metaphor aptness was also reliable for the main experiment. The question was part of a survey that also measured the participant’s familiarity with both metaphors, although the outcomes of these questions were not measured since familiarity with the metaphor is not a factor in the present study. The survey was translated to Dutch for distributional convenience. Only native speakers of Dutch were included in the test to minimize comprehension issues. The pretest had 20 respondents; however, one respondent did not have Dutch as a mother tongue and was therefore excluded. Table 1 shows that the participants’ age ranged between 17 and 53 years old, with a mean of 31.16 years ( $SD = 14.32$ ). 57.9% of participants were female and 57.9% of participants had completed an education higher than secondary education.

A paired samples t-test showed a significant difference between aptness for the beast metaphor and aptness for the weed metaphor ( $t(18) = 5.30, p < .001$ ). The weed metaphor ( $M = 4.86, SD = 1.70$ ) was evaluated as a more apt metaphor than the beast metaphor ( $M = 3.26, SD = 1.42$ ). These results indicate that there is a sufficient difference in aptness between the beast and weed metaphor and that the metaphors are suitable to represent a low and high aptness metaphor in the main experiment.

Table 1. Demographic characteristics of the pretest participants

|                                |       |                |
|--------------------------------|-------|----------------|
| <i>Age – years (SD; range)</i> | 31.16 | (14.32; 17-53) |
|--------------------------------|-------|----------------|

*Gender - % (N)*

|        |      |      |
|--------|------|------|
| Female | 57.9 | (11) |
| Male   | 42.1 | (8)  |

*Education - % (N)*

|                                      |      |     |
|--------------------------------------|------|-----|
| Secondary education                  | 42.1 | (8) |
| MBO (Secondary vocational education) | 10.5 | (2) |
| HBO (Higher professional education)  | 21.1 | (4) |
| WO (University)                      | 26.3 | (5) |

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**Subjects**

The study had 261 respondents to the questionnaire, of which 84 were excluded. Participants who did not finish the entire questionnaire were excluded (59), and non-native Dutch respondents were excluded to avoid complications due to comprehension issues (5). Some participants were excluded because they took above average time to complete the questionnaire (20). The exclusion criteria for duration were created by first removing the outliers, and then exclude all participants with a duration further than two standard deviations away from the mean (in seconds:  $M = 263.88$ ,  $SD = 147.50$ ). The characteristics of the remaining 187 participants are shown in Table 2. The mean age was 25.53 years ( $SD = 10.92$ ), ranging from 16 to 79 years old, and 67.9% of participants were female. The most common highest completed education level was primary or secondary education (49.2%). The background variable education level was originally measured by asking participants to select either primary education, secondary education, MBO, HBO, or WO. However, due to very low frequencies of certain options, primary and secondary education, as well as HBO and WO, were combined in further analyses; yielding three categories for education level. Age ( $F(5, 181) = 1.25$ ,  $p = .288$ ), gender ( $\chi^2(5) = 7.21$ ,  $p = .205$ ), education

level ( $\chi^2(10) = 17.70, p = .060$ ), and survey duration ( $F(5, 181) < 1$ ) were distributed evenly across all conditions.

Table 2. Demographics characteristics of the participants

|   |       |                |
|---|-------|----------------|
| <i>Age – years (SD; range)</i>                    | 25.53 | (10.92; 16-79) |
| <i>Gender - % (N)</i>                             |       |                |
| Female  | 67.9  | (127)          |
| Male  | 32.1  | (60)           |
| <i>Education - % (N)</i>                          |       |                |
| Primary/secondary education                       | 49.2  | (92)           |
| MBO (Secondary vocational education)              | 5.9   | (11)           |
| HBO/WO (Higher professional education/University) | 44.9  | (84)           |

## **Design**

The experiment had a 2x3 between-subjects design. Participants read about the flu with a beast metaphor or weed metaphor, or about TBE with a beast metaphor or weed metaphor. A control group was added for both the flu and TBE, with no metaphor used in the text.

## **Instrumentation**

This study measured the effects on the ratio variable motivation to resist persuasion (MRP). The conceptualization of MRP was based on Nisbet et al.'s study (2015) that measured the effects of political dissonance in science communication on MRP. MRP consists of a combination of two concepts: counterarguing and reactance. Counterarguing refers to the generation of thoughts that are contradictory or conflicting with the persuasive argument (Slater & Rouner, 2002). Reactance is based on Brehm's reactance theory (1966), which posits that recognition of a persuasive appeal

automatically leads to an oppositional response. Nisbet's scale for MRP consisted of eleven items that were measured on a seven-point Likert scale ('strongly disagree' – 'strongly agree'). The items contained statements such as "the text tried to pressure me to think a certain way" and "I found myself thinking of ways I disagreed with the information in the text". The complete scale can be found in Appendix 1. The reliability of the items was good ( $\alpha = .83$ ). The items were translated to Dutch to match the stimulus texts. Some items were reverse-coded (RC) to avoid negative response bias.

### **Procedure**

This study was conducted through the online survey software Qualtrics. The questionnaire was distributed through social media and personal networks and participation was on a voluntary basis. Participants were first asked questions to provide some personal characteristics (native language, age, gender, education level), and were then presented a text with one of the six text versions. After reading the text and proceeding to the questionnaire, there was no option to go back and re-read the text. This measure was taken to prevent the participants from re-evaluating the text after they have seen the questions and may have guessed the research intention. They then evaluated the text by filling out the seven-point Likert scales which measured MRP. Since the survey was part of multiple researches, participants were also asked questions about vaccination intention and attitude towards the text, which were not discussed in the present study. The order in which the different question blocks were presented to the participant was randomized. Afterwards, participants were asked a control question whether they noticed the metaphor, and if yes, followed by an open question asking which metaphor. These control question were asked lastly, because asking them first may have steered the focus of the participants too much towards the research

intention before filling out the questionnaire. Finally, they were thanked for participation. The complete questionnaire can be found in Appendix 2.

### **Statistical treatment**

Cronbach's alpha was used as a measure to determine the reliability of the dependent variables consisting of multiple items. One-way analyses of variance and Chi-square tests were done to check the distribution of participant characteristics across conditions. Additional Chi-square tests were carried out to check the text manipulations. A two-way analysis of variance was carried out to find any main and/or interaction effects of the independent variables.

## Results

The purpose of this study was to measure the effects of aptness of metaphors on the reader's motivation to resist persuasion (MRP), as well as the effects of familiarity of a disease on the reader's MRP, and to investigate a potential interaction between the two variables.

### Manipulation checks

A Chi-square test showed a significant relation between type of metaphor and respondents' ability to correctly answer the first control 'Did you notice a metaphor in the text you read?' ( $\chi^2(2) = 17.64, p < .001$ ). Table 3 shows that respondents who read a text that did not contain a metaphor (83.1%) answered the control question correctly relatively more often than respondents who read a text with the beast (49.2%) or weed metaphor (55.7%). Another Chi-square test showed a significant relation between type of disease and respondents' ability to correctly recognize the presence of a metaphor ( $\chi^2(1) = 21.28, p < .001$ ). Table 4 shows that respondents who read a text about the flu (80%) answered the control question correctly relatively more often than respondents who read a text about TBE (47.4%).

Table 3. Frequencies and percentages (between brackets) of correct or incorrect recognition of metaphor presence in function of type of metaphor.

|                                | No metaphor | Beast metaphor | Weed metaphor | Total      |
|--------------------------------|-------------|----------------|---------------|------------|
| Correct metaphor recognition   | 54 (83.1)   | 30 (49.2)      | 34 (55.7)     | 118 (63.1) |
| Incorrect metaphor recognition | 11 (16.9)   | 31 (50.8)      | 27 (44.3)     | 69 (36.9)  |
| Total                          | 65 (100)    | 61 (100)       | 61 (100)      | 187 (100)  |

Table 4. Frequencies and percentages (between brackets) of correct or incorrect recognition of metaphor presence in function of type of disease.

|  | Flu      | TBE       | Total      |
|--|----------|-----------|------------|
| Correct recognition of metaphor presence   | 72 (80)  | 46 (47.4) | 118 (63.1) |
| Incorrect recognition of metaphor presence | 18 (20)  | 51 (52.6) | 69 (36.9)  |
| Total                                      | 90 (100) | 61 (100)  | 187 (100)  |

For respondents who read a text containing a metaphor and who answered the first control question correctly, a Chi-square test showed no significant relation between type of metaphor and the ability to recall the metaphor correctly ( $\chi^2 (3) = 3.63, p = .304$ ). However, another Chi-square test did show a significant relation between type of disease and the ability to recall the metaphor correctly ( $\chi^2 (1) = 6.63, p = .010$ ). Table 5 shows that respondents who read about the flu (75.6%) were relatively better at recalling the metaphor at the end of the experiment than respondents who read about TBE (42.1%).

Table 5. Frequencies and percentages (between brackets) of correct or incorrect recall of the metaphor in function of type of disease.

|                           | Flu       | TBE       | Total     |
|---------------------------|-----------|-----------|-----------|
| Correct metaphor recall   | 34 (75.6) | 8 (42.1)  | 42 (65.6) |
| Incorrect metaphor recall | 11 (24.4) | 11 (57.9) | 22 (34.4) |
| Total                     | 45 (100)  | 19 (100)  | 64 (100)  |

### Motivation to resist persuasion

A two-way analysis of variance showed no significant main effect of type of metaphor on MRP ( $F(2, 181) = 2.75, p = .067$ ), nor a main effect of type of disease on MRP ( $F(1, 181) < 1$ ). However, an interaction effect was found between type of metaphor and type of disease ( $F(2, 181) = 4.42, p = .013$ ), which is illustrated in Figure 1.

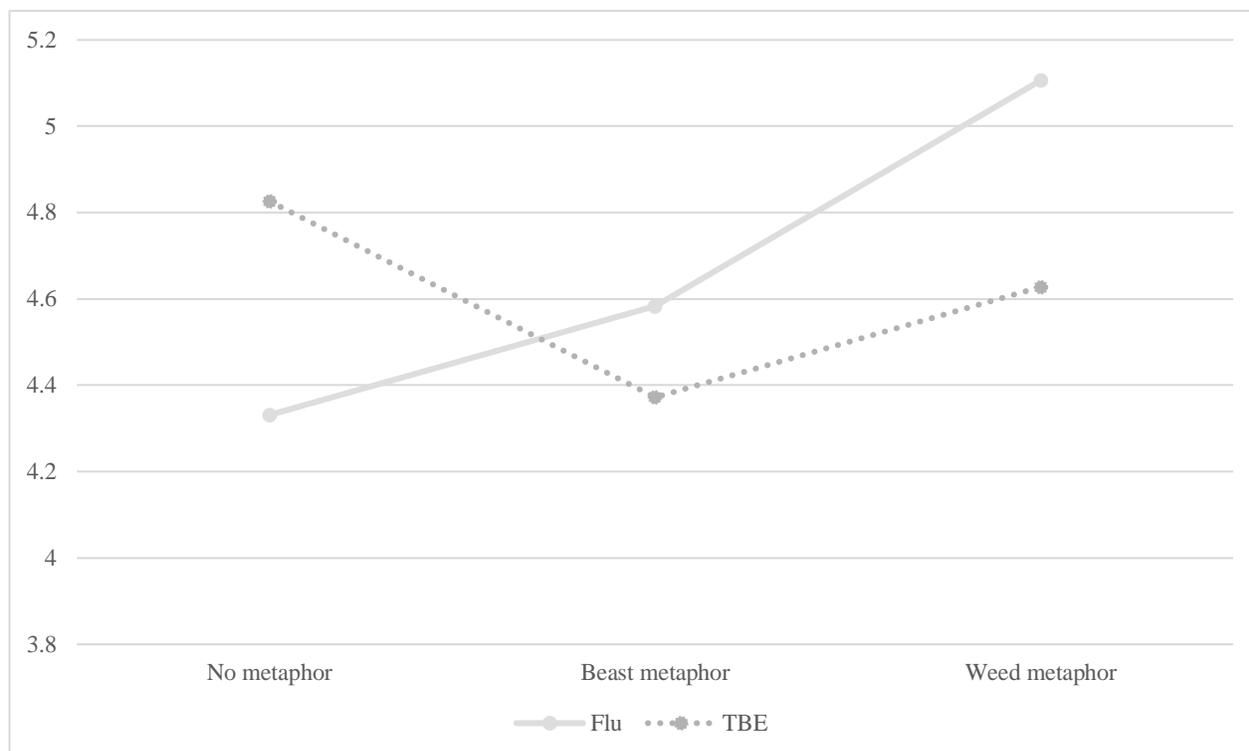


Figure 1. The means of MRP per metaphor and disease condition

Separate one-way analyses of variance showed there were only differences between the disease types in the no metaphor ( $F(1, 63) = 5.31, p = .024$ ) and highly apt weed metaphor condition ( $F(1, 59) = 4.06, p = .049$ ). There were no differences between the two disease types in the less apt beast metaphor condition ( $F(1, 59) < 1$ ). When the text contained no metaphor, MRP was significantly higher for the unfamiliar disease TBE ( $M = 4.83, SD = 0.74$ ) than for the familiar disease the flu ( $M = 4.33, SD = 0.99$ ), as shown in Table 6. Contrarily, when the text contained the

weed metaphor, MRP was significantly higher for the flu ( $M = 5.11$ ,  $SD = 0.81$ ) than for TBE ( $M = 4.63$ ,  $SD = 1.03$ ).

Table 6. Means, standard deviations and  $n$  for MRP in function of metaphor type and disease type (1 = low, 7 = high)

| Type of metaphor | Type of disease | $M$  | $SD$ | N   |
|------------------|-----------------|------|------|-----|
| No metaphor      | Flu             | 4.33 | 0.99 | 31  |
|                  | TBE             | 4.83 | 0.74 | 34  |
|                  | Total           | 4.59 | 0.89 | 65  |
| Beast metaphor   | Flu             | 4.58 | 1.00 | 29  |
|                  | TBE             | 4.37 | 1.11 | 32  |
|                  | Total           | 4.47 | 1.06 | 61  |
| Weed metaphor    | Flu             | 5.11 | 0.81 | 30  |
|                  | TBE             | 4.63 | 1.03 | 31  |
|                  | Total           | 4.86 | 0.95 | 61  |
| Total            | Flu             | 4.67 | 0.98 | 90  |
|                  | TBE             | 4.61 | 0.97 | 97  |
|                  | Total           | 4.64 | 0.98 | 187 |

## **Conclusion and discussion**

### **Conclusion**

The aim of this study was to measure the effects of metaphor aptness and disease familiarity on motivation to resist persuasion in the context of vaccination communication. Hypothesis 1, 'A metaphor with low aptness leads to a higher motivation to resist persuasion than a metaphor with higher aptness', could not be confirmed. There was no significant effect of type of metaphor on MRP. The first exploratory research question 'What are the effects of familiarity of the disease on motivation to resist persuasion in vaccination communication?' did not result in any statistically significant differences either. The second exploratory research question 'To what extent will the effects of type of metaphor on motivation to resist persuasion be different for a familiar disease versus an unfamiliar disease?' did generate notable results. Reading a text that contained the highly apt metaphor (weed) resulted in higher MRP when incorporated in a text about vaccination for a familiar disease (flu), compared to texts about vaccination for an unfamiliar disease (TBE). However, this difference was not measured when participants read about the less apt metaphor (beast). Moreover, for the participants who read a text that did not contain a metaphor, MRP was considerably higher when reading about vaccination for an unfamiliar disease than a familiar disease. Consequently, the insertion of a highly apt metaphor in the text caused a reversal of the outcome recorded in the control group.

### **Plausible explanations**

Based on the literature review, it was expected that a more apt metaphor would evoke less motivation to resist persuasion due to easier processing fluency. The hypothesis was partly based on Bullock et al. (2019), who claimed that lower processing fluency as a result of jargon can increase MRP. However, the present study found no difference in MRP between no metaphor, a

highly apt metaphor, and a less apt metaphor. These results suggest that although jargon and inapt metaphors could both cause lower processing fluency, their effects on MRP are not necessarily similar. Moreover, the hypothesis was based on Scherer et al. (2015), who demonstrated higher willingness to get vaccinated for the flu when metaphors were used in the message. The present study may have yielded a different outcome due to interference of the second variable: type of disease. The results showed that participants who read about TBE were relatively worse at recalling whether they read a metaphor (and which one) than participants who read about the flu. Not noticing the metaphor may have hindered the persuasive effect of the metaphor. However, previous research does not specify whether the persuasive effect of metaphors are only valid when the metaphor was noticed. Therefore, this is merely a speculation and further research into the conscious and unconscious effects of metaphors is necessary to provide an explanation.

Moreover, an interaction effect between metaphor aptness and disease familiarity was found, which has not been recorded in previous studies. Where the persuasive attempt to get vaccinated for an unfamiliar disease evoked more resistance in the text with no metaphor, the insertion of a highly apt metaphor in the text caused more resistance towards the persuasive attempt to get vaccinated for a familiar disease. Since this is the first documentation of the interaction effect, it is difficult to be entirely explained based on the literature. A plausible explanation for the reversed effect of disease familiarity between the two metaphor conditions could come from the communicator credibility theory. This theory posits that a communicator is immediately viewed as more credible when metaphors are used (Sopory & Dillard, 2002). One of the reasons behind this theory is based on a quote by Aristotle (*Poetics*, trans. 1952a): “The greatest thing by far is to be a master of metaphor. It is the one thing that cannot be learnt from others; and it is also a sign of genius” (p.255). The second reason behind the communicator credibility theory is that metaphors

can provide the reader with new insights about the topic by pointing out similarities between the source and target domains (Bowers & Osborn, 1966). This theory may provide an explanation as to why TBE caused more resistance in the no-metaphor text than the texts with metaphors, while the flu caused the least resistance in the no-metaphor text, and more resistance in the texts with metaphors. Since TBE was most likely unfamiliar for most participants, the only way of determining the credibility of the information was the text in the study. Using the communicator credibility theory, it would be plausible that the resistance in the control group was caused by a lack of credibility determiners. In turn, the metaphors in the other two conditions could have increased the perceived credibility and therefore evoked less resistance.

### **Limitations**

The limitations of this study are partially related to the two diseases that were chosen to represent a familiar and unfamiliar disease. While they were obviously selected because of their difference in familiarity, there were several other differences that may have influenced the results. First of all, the method of contraction is quite different between the two viruses. The flu is spread through droplets caused by coughing or sneezing (“Key Facts About Influenza (Flu)”, 2019). Tick-borne encephalitis is transmitted through a bite by an infected tick (“Tekenencefalitis (TBE)”, 2019). It is assumed that all participants were aware of the method of contraction of the disease they read about. For the flu, this is considered to be common knowledge among most people. For TBE, its full name (Tick-borne encephalitis) was used in the text, so the method of contraction could be deduced from the virus’s name. While the risk of contraction for the flu is similar among all participants, the risk of contracting TBE can differ between participants. As a result, this could influence the extent to which the persuasive attempt to get vaccinated is resisted (Park, 2012). For instance, a participant who spends a lot of time in the outdoors would be more likely to get tick

bites, and therefore have a higher risk of contraction than a participant who spends most of their time in an urban environment. Consequently, someone who has never had a tick bite in their life would be more likely to resist the persuasive attempt to get vaccinated than a person who gets tick bites often. This is a demographic characteristic of the participant which was not taken into consideration in this study.

Another difference between the two viruses is the health consequences it can have for our participants. While the flu can be fatal, this is a very small risk for patients under sixty years old (“Sterfte als gevolg van influenza”, 2019). Since the mean age of participants in this study was 25 years old, it can be assumed that most of the participants consider the flu to be a low-risk disease. On the other hand, TBE can cause meningitis, for which young adults up to the age of 25 are considered a high-risk group (“What is meningitis?”, n.d.). However, it was not mentioned in the stimulus texts that TBE can cause meningitis. Therefore, the differing health consequences of the two viruses would only have had an influence if a participant had preexisting knowledge about TBE. This is a factor that was not controlled for in the study.

Furthermore, some limitations were related to other aspects of the study. A substantial amount of the participants (36.9%) could not recall whether the text they read did or did not contain a metaphor by the end of the questionnaire. A possible explanation would be that the reference ‘the text you read’ in the control question was misunderstood. Perhaps, it would have been more clear if the topic and place of the text were specifically mentioned (e.g. ‘The text about the flu which you read at the start of this questionnaire’). Moreover, an explanation could be that the text was relatively short compared to the number of questions the participant had to answer. The text contained only four phrases and it could be read only once, before answering twenty questions evaluating the text. It can thus be questioned whether the text made a big enough impact to produce

reliable results. This was brought to light by a few informal comments of participants who said to have already forgotten the content of the text after the first question block.

Finally, the study did not measure processing fluency of the different metaphors or risk perception of the different diseases, even though the formulation of the hypothesis and research questions was largely based on these factors. Insight into these underlying mechanisms could have provided a clearer explanation for the outcomes of the study.

### **Further research**

Although this study did not find separate effects of metaphor aptness and disease familiarity on MRP, a new interaction effect between the two variables came to light. With the currently available literature, it is difficult to explain this effect. It was argued that the role of metaphor aptness was determined by processing fluency, while the role of disease familiarity was determined by risk perception. In further research, better understanding and explanation of the interaction effect could be provided by doing more in-depth research towards these underlying mechanisms and their effect on MRP. Moreover, one of the most striking results of the present study was the unfamiliar disease described with no metaphor causing such high resistance. For further research, it would be interesting to test if the communicator credibility theory is a contributing factor to this effect.

To conclude, this study presented several noteworthy results and brought new insights into resistance of vaccination communication. The most remarkable result was the finding of a new relation between metaphor aptness and disease familiarity. This finding provides suggestions for further research into the roles of processing fluency, risk perception, and communicator credibility in resistance of vaccination communication.

### Literature

- Blasko, D. G., & Connine, C. M. (1993). Effects of familiarity and aptness on metaphor processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *19*(2), 295–308. <https://doi.org/10.1037/0278-7393.19.2.295>
- Bond, L., & Nolan, T. (2011). Making sense of perceptions of risk of diseases and vaccinations: a qualitative study combining models of health beliefs, decision-making and risk perception. *BMC public health*, *11*(1), 943.
- Bowers, J. W., & Osborn, M. M. (1966). Attitudinal effects of selected types of concluding metaphors in persuasive speeches. *Communications Monographs*, *33*(2), 147-155.
- Brehm, J. W. (1966). *A theory of psychological reactance*. New York, USA: Academic Press.
- Briñol, P., Tormala, Z. L., & Petty, R. E. (2013). Ease and persuasion: Multiple processes, meanings, and effects. In *The Experience of Thinking* (pp. 111-128). London, UK: Psychology Press.
- Bullock, O. M., Colón Amill, D., Shulman, H. C., & Dixon, G. N. (2019). Jargon as a barrier to effective science communication: Evidence from metacognition. *Public Understanding of Science*, *28*(7), 845-853.
- Centers for Disease Control and Prevention (1999). Impact of vaccines universally recommended for children--United States, 1990-1998. *MMWR. Morbidity and mortality weekly report*, *48*(12), 243.
- Chiappe, D. L., & Kennedy, J. M. (1999). Aptness predicts preference for metaphors or similes, as well as recall bias. *Psychonomic Bulletin & Review*, *6*(4), 668-676.

- Forkner-Dunn, J. (2003). Internet-based patient self-care: the next generation of health care delivery. *Journal of Medical Internet Research*, 5(2), e8.
- Glucksberg, S., & McGlone, M. S. (1999). When love is not a journey: What metaphors mean. *Journal of pragmatics*, 31(12), 1541-1558.
- Goldstein, S., MacDonald, N. E., & Guirguis, S. (2015). Health communication and vaccine hesitancy. *Vaccine*, 33(34), 4212-4214.
- Greenwood, B. (2014). The contribution of vaccination to global health: past, present and future. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1645).
- Griep & grieprik (2019, April). Retrieved from <https://www.rivm.nl/griep-grieprik>
- Hussain, A., Ali, S., Ahmed, M., & Hussain, S. (2018). The anti-vaccination movement: a regression in modern medicine. *Cureus*, 10(7).
- Influenza (seasonal) (2018, November). Retrieved from [https://www.who.int/en/news-room/fact-sheets/detail/influenza-\(seasonal\)](https://www.who.int/en/news-room/fact-sheets/detail/influenza-(seasonal))
- Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health education quarterly*, 11(1), 1-47.
- Jones, L. L., & Estes, Z. (2006). Roosters, robins, and alarm clocks: Aptness and conventionality in metaphor comprehension. *Journal of Memory and Language*, 55(1), 18-32.
- Kata, A. (2010). A postmodern Pandora's box: anti-vaccination misinformation on the Internet. *Vaccine*, 28(7), 1709-1716.

Key Facts About Influenza (Flu). (September, 2019). Retrieved from <https://www.cdc.gov/flu/about/keyfacts.htm>

Lakoff, G., & Johnson, M. (2008). *Metaphors we live by*. Chicago, USA: University of Chicago press.

Matlock, T., Coe, C., & Westerling, A. L. (2017). Monster wildfires and metaphor in risk communication. *Metaphor and Symbol, 32*(4), 250-261.

Merriam-Webster. (n.d.). Beast. In *Merriam-Webster.com dictionary*. Retrieved March 26, 2020, from <https://www.merriam-webster.com/dictionary/beast>

Merriam-Webster. (n.d.). Virus. In *Merriam-Webster.com dictionary*. Retrieved March 26, 2020, from <https://www.merriam-webster.com/dictionary/virus>

Merriam-Webster. (n.d.). Weed. In *Merriam-Webster.com dictionary*. Retrieved March 26, 2020, from <https://www.merriam-webster.com/dictionary/weed>

Moyer-Gusé, E., & Nabi, R. L. (2010). Explaining the effects of narrative in an entertainment television program: Overcoming resistance to persuasion. *Human Communication Research, 36*(1), 26-52.

Nisbet, E. C., Cooper, K. E., & Garrett, R. K. (2015). The partisan brain: How dissonant science messages lead conservatives and liberals to (dis) trust science. *The ANNALS of the American Academy of Political and Social Science, 658*(1), 36-66.

Obregón, R., Chitnis, K., Morry, C., Feek, W., Bates, J., Galway, M., & Ogden, E. (2009). Achieving polio eradication: a review of health communication evidence and lessons learned in India and Pakistan. *Bulletin of the World Health Organization, 87*, 624-630.

- O'Keefe, D. J. and Jensen, J. D. (2007). The relative persuasiveness of gain-framed and loss-framed messages for encouraging disease prevention behaviors: A meta-analytic review. *Journal of Health Communication*, 12: 623–644. doi:10.1080/10810730701615198
- O'Keefe, D. J., & Nan, X. (2012). The relative persuasiveness of gain-and loss-framed messages for promoting vaccination: A meta-analytic review. *Health communication*, 27(8), 776-783.
- Oldfield, B. J., & Stewart, R. W. (2016). Common Misconceptions, Advancements, and Updates in Pediatric Vaccination Administration. *Southern medical journal*, 109(1), 38-41.
- Ottatti, V., Renstrom, R., & Price, E. (2014). The metaphorical framing model: Political communication and public opinion.
- Park, S. Y. (2012). The effects of message framing and risk perceptions for HPV vaccine campaigns: focus on the role of regulatory fit. *Health marketing quarterly*, 29(4), 283-302.
- Pența, M. A., & Băban, A. (2018). Message framing in vaccine communication: A systematic review of published literature. *Health communication*, 33(3), 299-314.
- Raff, M., Alberts, B., Lewis, J., Johnson, A., & Roberts, K. (2002). *Molecular Biology of the Cell*. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK26917/>
- Reijnierse, W. G., Burgers, C., Krennmayr, T., & Steen, G. J. (2015). How viruses and beasts affect our opinions (or not): The role of extendedness in metaphorical framing. *Metaphor and the Social World*, 5(2), 245-263.

- Scherer, A. M., Scherer, L. D., & Fagerlin, A. (2015). Getting ahead of illness: using metaphors to influence medical decision making. *Medical Decision Making, 35*(1), 37-45.
- Seeman, N., Ing, A., & Rizo, C. (2010). Assessing and responding in real time to online anti-vaccine sentiment during a flu pandemic. *Healthc Q, 13*(Spec No: 8-15).
- Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory, 12*, 173–191.
- Sopory, P., & Dillard, J. P. (2002). The persuasive effects of metaphor: A meta-analysis. *Human communication research, 28*(3), 382-419.
- Sterfte als gevolg van influenza. (2019, September). Retrieved from <https://www.volksgezondheidszorg.info/onderwerp/influenza/cijfers-context/sterfte#node-sterfte-als-gevolg-van-influenza>
- Tekenencefalitis (TBE) (2019, April). Retrieved from <https://www.rivm.nl/tekenencefalitis>
- Temoka, E. (2013). Becoming a vaccine champion: evidence-based interventions to address the challenges of vaccination. *South Dakota Medicine*.
- Van Stee, S. K. (2018). Meta-analysis of the persuasive effects of metaphorical vs. literal messages. *Communication Studies, 69*(5), 545-566.
- Vasquez, E. A., Loughnan, S., Gootjes-Dreesbach, E., & Weger, U. (2014). The animal in you: Animalistic descriptions of a violent crime increase punishment of perpetrator. *Aggressive behavior, 40*(4), 337-344.

Webber, P. (2003). Strategies for flu vaccination compliance among staff. *Infection Control Today*.

World Health Organization. (2015). Report of the SAGE working group on Vaccine Hesitancy.

Retrieved

from:

[http://www.who.int/immunization/sage/meetings/2014/october/SAGE\\_working\\_group\\_revised\\_report\\_vaccine\\_hesitancy.pdf](http://www.who.int/immunization/sage/meetings/2014/october/SAGE_working_group_revised_report_vaccine_hesitancy.pdf)

## Appendices

### Appendix 1. Nisbet's scale of MRP

- The text was very objective. (RC)
- The text tried to pressure me to think a certain way.
- The text did not try to force its opinions on me. (RC)
- The text was very believable. (RC)
- The text was not very credible.
- The text tried to manipulate me.
- Sometimes I wanted to “argue back” against what I read in the text.
- I found myself thinking of ways I disagreed with the information in the text.
- I couldn't help thinking about ways that the information in the text was inaccurate or misleading.
- I found myself looking for flaws in the way information was presented in the text.
- The text was trying to persuade me.

### Appendix 2. Questionnaire

Bedankt voor uw bereidheid om deel te nemen aan dit onderzoek.

**INFORMATIE EN TOESTEMMING** U wordt uitgenodigd om mee te doen aan een onderzoek naar gezondheidscommunicatie. Dit onderzoek wordt uitgevoerd door een groep derdejaarsstudenten in het kader van hun bachelorscriptie aan de Radboud Universiteit.

**Wat wordt er van u verwacht?** Meedoen aan het onderzoek houdt in dat u een online vragenlijst gaat invullen. De vragen hebben betrekking op een tekst waarin een bepaalde ziekte wordt beschreven. Het invullen van de vragenlijst kost ongeveer 5 - 10 minuten.

**Vrijwilligheid** U doet vrijwillig mee aan dit onderzoek. Daarom kunt u op elk moment tijdens het onderzoek uw deelname stopzetten. U hoeft niet aan te geven waarom u stopt.

**Wat gebeurt er met mijn gegevens?** De onderzoeksgegevens die we in dit onderzoek verzamelen, zullen door wetenschappers gebruikt worden voor datasets, artikelen en presentaties. De anoniem gemaakte onderzoeksgegevens zijn tenminste 10 jaar beschikbaar voor andere wetenschappers. Als we gegevens met andere onderzoekers delen, kunnen deze dus niet tot u herleid worden.

**Heeft u vragen of klachten over het onderzoek?** Als u meer informatie over het onderzoek wilt hebben of klachten heeft over het onderzoek, kunt u contact opnemen met dr. G. Reijnierse (e-mail: g.reijnierse@let.ru.nl).

**TOESTEMMING:** Geef hieronder uw keuze aan. Door te klikken op de knop 'Ik ga akkoord' geeft u aan dat u:

- bovenstaande informatie heeft gelezen
- vrijwillig meedoet aan het onderzoek
- 16 jaar of ouder bent

Als u niet mee wilt doen aan het onderzoek, kunt u op de knop 'Ik wil niet meedoen' klikken. De enquête zal dan worden afgesloten.

Ik ga akkoord (doorgaan met vragenlijst)

- Ik wil niet meedoen

Is Nederlands uw moedertaal?

- Ja
- Nee

Wat is uw geslacht?

- Man
- Vrouw
- Niet-binair
- Zeg ik liever niet

Wat is uw leeftijd?

---

Wat is uw hoogst voltooide opleiding?

- Basisonderwijs (1)
- Voortgezet onderwijs (2)
- MBO (3)
- HBO (4)

o WO (5)

U zult nu een tekst te zien krijgen waarin een bepaalde ziekte wordt beschreven. Daarna zullen enkele vragen aan u worden gesteld met betrekking tot deze tekst. Zorg ervoor dat u de tekst zorgvuldig leest.

U krijgt de tekst slechts één keer te zien.

[condition 1] Griep is een virus dat het lichaam infecteert. Griep komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u op elk moment van het jaar griep kunt krijgen, komt griep in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

[condition 2] Griep is een beest dat op het lichaam jaagt. Griep komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u op elk moment van het jaar griep kunt krijgen, komt griep in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

[condition 3] Griep is een onkruid dat zich snel door het lichaam verspreidt. Griep komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u op elk moment van het jaar griep kunt krijgen, komt griep in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

[condition 4] Tekenencefalitis is een virus dat het lichaam infecteert. Tekenencefalitis komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u tekenencefalitis op elk moment van het jaar kunt krijgen, komt tekenencefalitis in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

[condition 5] Tekenencefalitis is een beest dat op het lichaam jaagt. Tekenencefalitis komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u tekenencefalitis op elk moment van het jaar kunt krijgen, komt tekenencefalitis in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

[condition 6] Tekenencefalitis is een onkruid dat zich snel door het lichaam verspreidt. Tekenencefalitis komt in Nederland voor en kan grote gevolgen hebben voor de gezondheid. Hoewel u tekenencefalitis op elk moment van het jaar kunt krijgen, komt tekenencefalitis in bepaalde seizoenen vaker voor. Daarom moet u zichzelf er echt tegen laten vaccineren!

Lees onderstaande stellingen zorgvuldig en geef aan in hoeverre u het met de stelling eens bent:





Ik ben bereid mijzelf te laten vaccineren tegen de ziekte beschreven in de tekst.

|              |                       |                       |                       |                       |                       |                       |                       |      |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|
| Niet<br>waar | <input type="radio"/> | Waar |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|

Ik ben van plan mijzelf te laten vaccineren tegen de ziekte beschreven in de tekst.

|                    |                       |                       |                       |                       |                       |                       |                       |                  |
|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
| Ze<br>er<br>oneens | <input type="radio"/> | Ze<br>er<br>eens |
|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|

Ik vond de tekst...

|                | Ze<br>er<br>oneens    | Oneens                | Enigszins<br>oneens   | Niet<br>oneens of<br>eens | Enigszins<br>eens     | Eens                  | Ze<br>er<br>eens      |
|----------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| Eerlijk        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Betrouwbaar    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overtuigend    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bevooroordeeld | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Geloofwaardig  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Een metafoor is een vorm van beeldspraak gebaseerd op vergelijking, waarbij een woord in niet-letterlijke betekenis wordt gebruikt.

*Vb: Jouw kamer is net een zwijnenstal!*

Heeft u een metafoor opgemerkt in de tekst die u heeft gelezen?

- Ja
- Nee

Welke metafoor heeft u opgemerkt in de tekst die u heeft gelezen?

---