INSTITUTIONEN FÖR PSYKOLOGI

SV: Effekten av framing under en pandemi: Ett mer realistiskt Asian Disease Problem

EN: Framing effect in time of a pandemic: A more realistic Asian Disease Problem

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Abstract

Coronaviruset sprids nu över hela världen, vilket skapar utmaningar för både individer och samhället i sin helhet. Pandemin påverkar personer på en psykologisk nivå, även om de kanske inte vet om det själva. Inspirerade av Tversky & Kahnemans (1981) Asian Disease Problem, så syftar den här uppsatsen till att undersöka hur effekten av framing påverkar människors beslutsfattande under en pandemi, hur det kan kan kopplas till rädsla och social anknytning, samt den möjliga skillnaden mellan fiktiv och realistisk scenario-framing. En online-enkät användes för att samla in data från ett urval av svenska personer, och resultatet visade en skillnad i beslutsfattande baserat på vilken framing deltagarna fick i enkäten. Dessutom, så visade resultatet en signifikant skillnad mellan den nuvarande studien och originalstudien av Tversky & Kahneman, vilket föreslår att deltagarna av den här studien var mer benägna att välja det säkra alternativet när negativ framing användes. Den här skillnaden mellan resultaten kan kopplas till tidigare forskning på till exempel mortality salience. Ytterligare resultat kan kopplas till tidigare studier om bland annat social anknytning och beslutsfattande. Sammanfattningsvis, så visar den här uppsatsen att beslutsfattande påverkas av framing, vilket visar att coronaviruset kan appliceras som en mer realistisk variant av Asian Disease Problem.

Nyckelord: Beslutsfattande, Asian Disease Problem, framing effect, coronavirus, COVID-19, rädsla, social anknytning.

Abstract

The world is currently facing the coronavirus, which causes challenges to individuals, as well as society as a whole. The pandemic affects people on a psychological level, even if they might not know it. Inspired by Tversky & Kahneman's (1981) Asian Disease Problem; this paper aims to investigate how framing effect in time of a pandemic affects decision making, how this could be linked to fear and social attachment, as well as the possible difference between using a fictional or more realistic scenario framing. An online survey was used to collect data from a sample of Swedish people, and the result showed a difference in decision making based on the framing used in the survey. Furthermore, the results showed a significant difference between the present study and the original Asian Disease Problem-study, suggesting that the participants of this study were more likely to choose the safe option when framed negatively. This difference in results could be linked to previous research on for example mortality salience. Additional results of the study can be linked to past studies on for instance social attachment and decision making. In conclusion, decision making is affected by framing effect, suggesting that the application of the coronavirus could be considered a more realistic Asian Disease Problem.

Keywords: Decision making, Asian Disease Problem, framing effect, coronavirus, COVID-19, fear, social attachment.

Introduction

A pandemic is continuing to spread around the globe, which poses a monumental challenge to society (Schimmenti, Billieux & Starcevic, 2020). At the time of writing, over 7 million people have been infected by the coronavirus, and 420 000 people have died (Worldometers, 2020). The pandemic does not only lead to concerns on a physical level, but also affects people on a psychological level (Brooks et al. 2020). Even though not everyone is infected, the pandemic affects us all in one way or another. Are we starting to think differently? And if so, in what way?

Crisis situations supposedly affect how people think, behave and make decisions. There is not much research on ongoing pandemics, since they don't happen often. Because of this, much research on how people behave and think in crisis situations is based on hypothetical crises (c.f. Tversky & Kahneman 1981). The current coronavirus pandemic creates a unique opportunity to study how an actual crisis situation affect how people think, behave and make decisions, which is the main purpose of this study. Studying an actual pandemic as opposed to studying hypothetical crises yields a higher ecological validity since it can be applied to real life (Schmuckler, 2011).

Thereby, the present study aims to investigate the effects of framing on decision making in time of a pandemic, based on the Asian Disease Problem (see appendix A) study by Tversky & Kahneman (1981). In addition to this, a few short questions will be asked in order to get an understanding of the participants' view of this pandemic. How does it affect us?

Background

The world is currently facing a pandemic, which is causing an increase in general health anxiety (Asmundson & Taylor, 2020). While restrictions and regulations to decrease the spread of the COVID-19 are being established, knowledge about the virus is still limited (Schimmenti, Billieux & Starcevic, 2020). New information is found every day, and old information is proven false every other day. Since we don't have the whole picture, it is easier to be affected by phenomena such as false memories and bias (Schimmenti, Billieux & Starcevic, 2020) This fear of the unknown could certainly be a big part of why the health anxiety levels are rising (Schimmenti, Billieux & Starcevic, 2020). The fact that the virus is mentioned on a daily basis on the news also reminds people of the danger, not allowing them to escape into ignorance

(Asmundson & Taylor, 2020). It could be stated that this affects most people in a variety of ways. This study will mainly focus on three behaviors that are either affected by, or affects, the outcome of COVID-19, namely decision making, social attachment and fear.

      Decision making and framing effect. Every day we make decisions. Some are insignificant and we forget what the choice we made was, or forgot we even had a choice to make in the first place. Others are defining moments of our lives, those which define who we are and affect what happens to us, those around us, and quite possibly the whole world we live in. The concept of decision making has been explored for a long time, including how risk affects our decisions, and how different circumstances alter how the risk is assessed (Bernoulli, 1738, as referred to in Sommer, 1954). For instance, money is considered to be worth more to those who don't have it and therefore have a higher utility than for a rich person (Bernoulli, 1738, as referred to in Sommer, 1954). Kahneman & Tversky (1979) presents an alternative theory - prospect theory, in which they theorised mathematically what made someone gamble or avoid risks, where they suggested that people valued potential outcomes as well as certain outcomes of actions. In other words, potential outcomes are probable to a degree, meaning that there is also a risk or chance that it does not occur (see Appendix A, treatment option B), while a certain outcome does occur (see Appendix A, treatment option A). Decision making can be both rational, where you weigh pros and cons against each other, or intuitive, where you rely on your gut feeling (Coget, Haag & Gibson, 2011).

      As decision making helps to solve problems, the same heuristics that are found in problem solving are also present in decision making (Katapodi, Facione, Humphreys & Dodd, 2005). According to Tversky & Kahneman (1973) one of the most important heuristics is the availability heuristic. Availability heuristics describe the probability and frequency of something happening. This is a quick process, based on experiences of something similar to the active stimuli. To clarify, availability heuristics say that we are more likely to choose things that we recognize, compared to things we do not (Folkes, 1988). People tend to choose the safe option when framed positively, and the risky option when framed negatively. Kusev, van Schaik, Rose, Hall and Johansson (2020) explains this preference reversal as an effect of people adapting a risk averse behavior when there is a high probability of gaining something/low probability of losing something and adapting a risk seeking behavior when there is a low probability of gaining something/high probability of losing something (Kusev, van Schaik, Rose, Hall and Johansson, 2020). This type of preference reversal occurs due to the person being faced with a situation of likely negative outcomes instead of likely positive outcomes

(disutility instead of utility). In a series of studies conducted by Folkes (1988), it was shown that the availability heuristic could influence the participants perception of products. When introduced to the same problem, different people might choose different solutions to that problem. People tend to make different decisions; this could be because of a difference in their cognitive models (Anderson, 1993), but it could also be because of how the problem and/or solutions are presented (Tversky & Kahneman, 1981). This is called framing effect. There are three established forms of framing; attribute framing, goal framing and risky choice framing (Levin, Schneider & Gaeth, 1998). In attribute framing, one or more attributes are divided between the participants, and presented as positive or negative. For example in a study by Levin, Gaeth, Schreiber & Lauriola (2002) to test the various attributes, participants were told they would picture themselves cooking their favourite lasagna dish using ground beef. This ground beef was then described as either 80% lean or 20% fat, for positive and negative conditions respectively. In goal framing, the goals are conditioned either positively or negatively. Levin et al. (2002) exemplified by splitting participants into two different groups where one got to read an article with positive effects of not eating red meat and the other got to read an article with negative effects of continuing to eat red meat.

In the present study the focus is on latter form, namely risky choice framing. Risky choice framing effects are achieved by presenting a problem for people and give them two options, one that is safe and has a 100% chance of happening, and the other option that could result in an even better result but also could result in the worst possible way. The outcomes are then framed negatively for half the people and positively for the other half. After it is analysed how the positively and negatively framed outcomes affected people's willingness to take risks (Levin, Gaeth, Schreiber & Lauriola, 2002). When Kühberger, Schulte-Mecklenbeck & Perner (1999) did a meta-analysis concerning framing effect studies, they also explained that in order to distinguish framing effect from reflection effect, both the choices are either positive or negative, while in reflection effect one is positive and one is negative. This can be done as loss can be positively framed and gain can be negatively framed (Kühberger, Schulte-Mecklenbeck & Perner, 1999).

Asian Disease Problem. Tversky & Kahneman (1981), investigated risky-choice framing in their study about the Asian Disease Problem (See appendix A). The Asian Disease Problem consists of 2 scenarios, that is either positively or negatively framed. Each participant only gets to see one scenario, and is then asked which treatment option they would recommend. The results of their study (See table 2) showed that the participants were more likely to choose

the risky option (option B) when negatively framed, as opposed to positively framed (Tversky & Kahneman, 1981). The Asian Disease Problem has been investigated by other researchers as well (f.e. Kühnberger, Schulte-Mecklenbeck & Perner, 1999). Diederich, Wyszynski & Ritov (2018) performed a series of studies based on the Asian Disease Problem, but changing it to different of diseases: leukemia, AIDS, and an 'unusual infection'. Their result corresponded with previous theories that the framing could be seen as a semantic cue, and that this semantic cue becomes less effective when other concepts are more prominent (Krishnamurthy, Carter & Blair, 2001). For example, the word 'leukemia' might remove the effects of the framing, since the semantics of the word is stronger than the framing itself (Diederich, Wyszynski & Ritov, 2018). They also argued that "perception of the disease, subjective evaluation of the risk (personal or societal), and attitude towards the victims" (Diederich, Wysynski & Ritov, 2018, p. 539) affect how people might reason when it comes to specific diseases. Nevertheless, the Asian Disease Problem has been thoroughly criticised. According to Dreisbach & Guevara (2017) the study is not relevant in regard to prospect theory, and that it is better suited for ethical theory.

A study that investigated real life decision making was conducted by Onarheim, Sisay, Gisaw, Moland & Miljeteig (2017). It regarded real decision making about life and death for ethiopian newborns, it was found that people struggled with their decisions in regards to acquiring medical care for their newborn. Argumenting for both financial prosperity as well as putting babies health first, it becomes clear that when these types of decisions are actually something many people have to go through, it's no longer just a theoretical problem (Onarheim, Sisay et. al., 2017).

Regarding the comparison between fictive and realistic scenario framing and decision making, a study was conducted by Kühberger (2002). The results indicated that choices made in hypothetical scenarios match choices made in real life scenarios. However, Kühberger also addresses the plausible existence of factors that could cause a difference in decision making between hypothetical and realistic scenarios. This would be the case if the scenario involves for instance strong affective states, intoxication and bodily changes, as people might have a hard time to fully grasp those conditions when presented with a hypothetical scenario (Kühberger, 2002).

Fear. Fear is a basic human emotion, and is very relevant when it comes to how people react to crisis situations - including this pandemic. Not only how scared people become, but also how they react to and handle this fear (Schimmenti, Billieux & Starcevic, 2020). Emotions

such as fear can influence the way we make decisions (Coget, Haag & Gibson, 2011). Fear can either induce rational decision-making, or intuitive decision-making. A study by Coget, Haag & Gibson found that "moderate fear leads to moderately effective rational decision-making, whereas high intensity fear leads to ineffective intuitive decision-making" (Coget, Haag & Gibson, 2011, p. 486).

According to Schimmenti, Billieux & Starcevic (2020), there are four main types of fear that are related to the outbreak of the coronavirus. Firstly, the fear of/for the body manifests itself through physical symptoms, both actual physical symptoms, and the fear of getting physical symptoms. As the fear of getting the physical symptoms causes stress, it in turn causes physical symptoms. It is also more common during this pandemic to be more sensitive to physical symptoms than normal, such as thinking you might be very sick after a cough. Simultaneously, people avoid going to hospitals when they are sick because they are scared of the virus. Secondly, the fear of/for significant others occur most likely due to the social distancing recommendation. Because of this the risk increases that we perceive both ourselves and our loved ones as dangerous to our health, which might affect the relationships we have with them since we cannot spend time with them the way we usually do. Thirdly, the fear of knowing/not knowing may be a result of the limited amount of information available about the virus. The not knowing, combined with the knowing as well as the need to know, is likely to increase fear and thus minimise risk-taking behaviors. This could also be affected by availability heuristics since it can create biases in reasoning, which might affect the level of fear (Schimmenti, Billieux & Starcevic, 2020). In addition to this, the knowledge that the health care system is overloaded might lead to more fear since you know that if you get sick, you might have trouble getting help. Lastly, fear of taking action/inaction could also become a problem. This could lead to problems with simple daily tasks such as grocery shopping, or overcoming the boredom of staying at home constantly. Others might react with complete inaction - since they're afraid of taking action, and others might react with action, - such as constantly posting on social media, because they are afraid of being inactive. These opposing fears are problematic on their own, but even more so when combined with their opposite. "Fears alternate quickly, producing indecisiveness and paralysing action" (Schimmenti, Billieux & Starcevic, 2020, p. 43). For example, both wanting to visit relatives in order to take care of them, as well as not wanting to meet them in order to protect them.

On the other hand, research by Craske, Liao, Brown & Vervliet (2012) found that when exposed to fear for a prolonged period of time one starts to be desensitized risks and danger,

thus decreasing the level of fear. This could be explained by habituation, i.e. when you get used to a certain stimulus the effect of said stimulus decreases, and so does the belief of potential outcomes (Craske, Liao, Brown & Vervliet, 2012).

      Social attachment. Humans are social beings, and our relationships with other people affect how we behave in certain situations (Schimmenti, Billieux & Starcevic, 2020). How people react to crisis situations can be influenced by social attachment, as observed in a study by Shentu, Ma & Guo (2018). They found that people who had many social attachments (such as having children and/or a significant other), reacted differently in crisis situations compared to people with less social attachment. For instance, people with social attachments were more likely to take longer to evacuate. This was believed to be due to a higher chance of survival if they evacuated together, rather than alone. There are however more factors that should be considered, such as the connection to social identity (Shentu, Ma & Guo 2018). This could be related to the concept of mortality salience, a part of terror management theory, which concerns how much something can induce a fear of death (Steele, 2020). COVID-19 could be considered to have a large mortality salience, since it makes us question "the basic human existential fear of death and oblivion" (Steele, 2020, p. 97). A study by Mikulincer & Florian (2000) found that having secure social attachments tends to make you less affected by mortality salience, since it was believed to be because you can depend on other to gain a sense of purpose. In addition, their findings suggests that mortality salience tends to increase people's idea of symbolic immortality, suggesting that people with good social attachments react to mortality salience by relying on other coping mechanisms, which in turn decreases the fear of death (Mikulincer & Florian, 2000). In other words, social attachment could influence how we perceive and interpret situations - especially situations involving fear, which in turn can affect how we make decisions (Coget, Haag & Gibson, 2011).

      Decision making in time of a pandemic. The concept of decision making has been studied for a long time. How people make decisions tend to be affected by many factors, including availability heuristics (Tversky & Kahneman, 1973), framing effect (Tversky & Kahneman, 1981), as well as prospect theory (Kahneman & Tversky, 1979). How decisions are made can also be influenced by emotions such as fear (Coget, Haag & Gibson, 2011). Different levels of fear might influence one's ability to make decisions in different ways (Coget, Haag & Gibson, 2011). Social attachments such as relationships and children, can affect our level of fear response, such as making them less affected by mortality salience (Mikulincer & Florian, 2000). The Asian Disease Problem was originated by Tversky & Kahneman (1981), and has

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been researched plenty since then in different ways (f.e. Kühnberger, Schulte-Mecklenbeck & Perner, 1999). However, most studies investigate fictional problems. The present study will be analysed and compared with the original study by Tversky & Kahneman (1981), as well as investigating the effects of framing on participants views of the virus. This study will also make use of previous research in order to understand the results. Presently, the world is facing the corona pandemic, which provides an opportunity to study framing effect on a real crisis situation.

Hypotheses and research questions

A hypothesis of this study is that the results will differ from the original study by Tversky & Kahneman (1981) since the current study investigates an actual occuring pandemic, rather than a fictional problem. This could cause a difference in decision making because the coronavirus as a real situation could be considered to lead to physiological change, altered emotional states and death. These states are more likely to be fully understood when presented in a realistic scenario (Kühberger, 2002). Another hypothesis is that negative framing will make the participants choose treatment option B rather than option A, as observed in the study by Tversky & Kahneman (1981). In addition, it could be hypothesised that the framing will act as priming, and affect how the participants answer the other questions in the survey. Furthermore, a descriptive analysis of the data will be conducted in order to get a better view of the participants view of the coronavirus, as well as highlight possible confounding variables.

The main research question of this paper is: *How is decision making affected when the framing effect is more realistic, as opposed to fictional?*, as well as the underlying questions: *To what extent does decision making differ during a pandemic compared to normal conditions?* and *To what extent does framing affect how a situation is interpreted?*

Method

Participants

The participants of the study ($n = 148$) were between the ages 19 and 82 ($M = 35.4$, *SD* $= 12.8$). 71 of the participants (48%) were allocated to scenario 1, and 77 participants were allocated to scenario 2 (52%). 80% of the participants were females, 19% were males, and 1% chose not to answer (for additional demographics, see appendix C, table 3-7). Since the survey was written in Swedish, it could be stated that all participants were Swedish-speaking.

Materials

The main material used for this study was a survey (see Appendix B). The survey was created in Google Forms, and consisted of demographics such as gender and age, as well as one of two scenarios. Tversky and Kahneman's (1981) Asian Disease Problem (see Appendix A) was used to formulate these scenarios. Following the scenarios were 7 questions regarding participants general attitude and subjective opinions towards the pandemic. For example, question 6: "How likely do you think that you are to get infected by the Coronavirus?". The statistical software Jamovi was used to analyse the data (https://www.jamovi.org/). Other materials used were computers and internet, as well as the APA manual (APA, 2009).

Design and procedure

In order to investigate the research questions of this paper, a quantitative approach was chosen, and a survey-method was used. Convenience sampling was used, partially because collecting data in other ways would be difficult considering the virus. The survey was then spread through social media. Inspired by the study by Tversky and Kahneman (1981), the scenario used in the survey was framed in two different ways, either the formulation "saved" (positive) or the formulation "died" (negative). In order to allocate the participants to the two conditions in a randomised way, the survey included a question where the participants were asked to choose one of two options (see appendix B). If they chose '<' it would lead them to scenario 1 ("saved"), and if they chose '>' it would lead them to scenario 2 ("died"). The order of which the symbols were shown were changed, so for one participant '<' might have been the top alternative, and for another '>' was the top alternative. The participants were unaware that another scenario existed, and we did now know which participant that got which scenario. This could be said to be a double-blind procedure (Shaughnessy, Zechmeister & Zechmeister, 2015).

The survey was created using the free survey tool Google Forms (see appendix B) where the participants could go in and answer the survey. The survey was then distributed using social media networks, such as Facebook and Discord. It was shared with our contact circles, with the encouragement that they could share it further. The scenarios used in the survey were constructed based on the corona-pandemic as well as Asian Disease Problem (Tversky & Kahneman, 1981). After the survey had been open for eight days, an unequal distribution of answers in the conditions was observed, and therefore the option was changed so that both "<" and ">" led to the scenario with the least amount of replies for the final days of the survey. The survey was open to responses in total for 14 days, and then the data was analyzed with the

statistical software Jamovi. The data was analysed using chi-squared goodness of fit, as well as Kruskal-Wallis ANOVA, Mann-Whitney U t-tests and regression analysis, based on the type of data for each analysis.

Ethical considerations

All ethical considerations were met for this study, and a declaration to follow research ethics were signed by both the authors and their supervisor. The study did not intend to cause any harm to the participants, and no sensitive private information was asked for that could be traced back to the individual participants. Considering the topic of the study, participants might become more worried about the virus than they already are. In accordance with the minimal risk principle (Shaughnessy, Zechmeister & Zechmeister, 2015), the judgement was made that the survey has minimal impact compared to the constant news and media reports, which justifies this concern. As a result of this, we did not enquire whether the participant had an increased risk to experiencing worse symptoms (c.f. respiratory illness and diabetes). The decision was also made to not include questions regarding how meaningful the participants valued their relationships and children. In addition to this, the survey emphasizes that the scenario used is based on fictive numbers. All data was handled confidentially, meaning that there is no way to trace each answer back to the participant. Before partaking in the survey the participants were given information regarding anonymity, withdrawal, and informed consent. To start the survey the participants had to check a box in order to accept the conditions of the survey and agree to participate. One could argue that checking a box on a computer is not the same as signing a consent form, but since the study followed the minimal risk principle, this is considered appropriate. Deception was used to a slight degree, since the aim of the study wasn't revealed before the study, since doing so could have affected the results. The only information given about the content of the survey beforehand was that it was about decision making. A short debriefing was included at the end of the survey. In addition, participants were given the option to contact us if they wanted more information, had any questions, or if they wanted to know the results of the study.

Results

Framing and treatment option

The results were analysed using the statistical program Jamovi. The main results (see table 1) were calculated with Chi-square goodness of fit, and showed that for scenario 1 there was a significant difference between the treatment options, $\chi^2(1, n = 71) = 8.80$ ($p = .003$), but for scenario 2 the difference between the options were not statistically significant, $\chi^2(1, n = 77) = 0.0130$ ($p = .909$).

Table 1: *Showing the number of participants from each scenario who chose what treatment option, with the percentage distribution in parenthesis.*

	Treatment option A	Treatment option B	Total
Scenario 1	48 (68%)	23 (32%)	71 (100%)
Scenario 2	39 (51%)	38 (49%)	77 (100%)

Comparison with Tversky & Kahneman (1981)

A chi-squared goodness of fit test (see table 1 and 2) was performed in order to see the differences between the present study and the original Asian Disease Problem study (Tversky & Kahneman, 1981). The values from the present study was entered as observed values, and the values from the original study was entered as expected values. For scenario 1 the results were not significant, $\chi^2(1, n = 71) = 0.680$ ($p = .410$). However for scenario 2 the results were significant, $\chi^2(1, n = 77) = 36.8$ ($p = <.001$), which showed that treatment option A was more frequently chosen compared to treatment option B in the present study.

Table 2: *Showing the results from the original study by Tversky and Kahneman (1981). Showing the number of participants from each scenario who chose what treatment option, with the percentage distribution in parenthesis.*

	Treatment option A	Treatment option B	Total
Scenario 1	109 (72%)	43 (28%)	152 (100%)
Scenario 2	34 (22%)	121 (78%)	155 (100%)

Survey questions

For each of the questions a Kruskal-Wallis one-way ANOVA with the questions as dependent variables and scenario as independent variable. A separate Kruskal-Wallis was conducted for each of the dependent variables. A regular ANOVA was not used, since the data violated the assumption of normality ($p =$ <.001). Levene's homogeneity of variance was however fulfilled ($p = .051$). The results were the following:

Question 1. "If someone wakes up with a cold during this pandemic, but has no fever, they should not go to work". The result showed a difference between gender and question 1, $\chi^2(2) = 5.49$ ($p = .062$), which means that it is not significant, but suggests that there is a tendency that women scored higher on the question. Work status, relationship status, having children and living area were not significant for question 1. The scenario framing was not significant for question 1. Also, there was no significant difference between the treatment options when scenario framing was disregarded.

Question 2. "If someone does not show any symptoms during this pandemic, it is okay if they visit their elderly relatives". A slight but insignificant connection was found between this question and if the participants had children or not, $\chi^2(1) = 2.92$ *($p = .087$)*, suggesting that participants with children scored lower when it came to visiting their older relatives. Gender, work status, relationship status and living area were not significant for question 2. The scenario framing was not significant for question 2. Excluding the scenario framing, there was a statistically significant link between those who chose option B and those who scored high on the question compared to those who chose option A, $\chi^2(1) = 5.49$ ($p = .019$).

Question 3. "During this pandemic there are recommendations on how many people that should be allowed to gather at the same location. This is something positive". Gender, work status, relationship status, having children and living area were not significant for this question. The scenario framing was not significant for this question. When scenario framing was excluded, there was a significant difference between what treatment option was chosen, $\chi^2(1) = 7.48$ ($p = .006$), suggesting that those who picked option B tended to score lower on this question compared to those who chose option A.

Question 4. "If someone hurts themselves during this pandemic, in a way that they would normally go to the hospital for (but is not life threatening), they should avoid going to the hospital in order to not get infected". Relationship status was not significant, but noteworthy, $\chi^2(3) = 7.11$ ($p = .069$), showing that those living together tended to score higher

on this question. Gender, work status, having children and living area were not significant for this question. The scenario framing was not significant for this question. When scenario framing was excluded, there was a nonsignificant but meaningful difference between what treatment option was chosen, $\chi^2(1) = 3.33$ ($p = .068$), indicating that those who picked option B scored higher on question 4.

Question 5. "It is reasonable for someone to stock up on toilet paper and canned food during this pandemic." Gender, work status, relationship status, having children and living area were not significant for this question. Scenario framing was not significant for this question. Excluding scenario framing, there was no significant difference between the treatment options chosen.

Question 6. "How likely do you think that you are to get infected by the Coronavirus?" Gender, work status, relationship status, having children and living area were not significant for this question. Scenario framing was not significant for question 6. When scenario framing was excluded, no significant difference between the treatment options was found.

Question 7. "If you were to be infected by the Coronavirus, how afraid are you of dying?" When this question was tested with relationship status it was significant, $\chi^2(3) = 8.78$ ($p = .032$), suggesting that participants who were married scored the highest in general. Additionally, a statistically significant link was found between participants having children and scoring higher on the question, $\chi^2(1) = 4.53$ ($p = .033$). Gender, work status and living area were not significant for this question. The scenario framing for this question was not significant, $\chi^2(1) = 3.48$ ($p = .062$), but worth mentioning. This shows that the participants who were framed with scenario 2 tended to score lower on question 7. But, when scenario framing was disregarded there was no difference between the treatment options.

Additional results

Two Mann-Whitney U tests were conducted in order to see if age (DV) influenced what treatment option (IV) the participants chose. This showed that age was not significant for scenario 1, $t(69) = 471$, ($p = .510$), but it was significant for scenario 2, $t(75) = 548$, ($p = .011$). Mann-Whiteny U tests were used instead of independent T-tests since the assumptions of normality and homogeneity of variance were not fulfilled.

A weak but significant correlation was found between age and question 7, using a correlation matrix, $r(146) = 0.35$ ($p = <.001$), meaning that the older the person was, the higher he/she was likely to score on question 7. When conducting correlation matrices of the questions,

a weak but significant correlation between questions 5 and 7 was found, $r(146) = 0.26$ ($p = .001$), showing that the higher the participants scored on question 5, the higher they tended to score on question 7.

Two t-tests were conducted in order to see if there was a gender difference between what treatment option was chosen. One outlier was not included in these two tests. Since the assumption of normality was violated ($p = <.001$), two Mann-Whitney U t-tests were conducted. There was no significant gender difference between the options for scenario 1, nor for scenario 2.

Discussion

The main results showed that when the "saved"-framing was used (scenario 1), participants were more likely to choose the safe option (treatment option A) rather than the risky option (treatment option B). When the "will die"-framing was used (scenario 2), there was no observable difference between the distribution of choices. When the results were compared to the original ADP study, the "will die"-framing was significantly different, since in the present study 49% chose the probability option, compared to the original study where 78% chose the risky option. As for question 7: "If you were to be infected by the Coronavirus, how afraid are you of dying?" was not significant, but still noteworthy. Responses to question 7 was affected by if the participants had children or not, as well as relationship status.

Framing and treatment option

It was hypothesised that negative framing (using the word "died" instead of "saved") would make more participants choose the risky option (treatment option B) than the safe option (treatment option A). This hypothesis was however not confirmed, since for negative framing the participants had an approximately equal distribution between the treatment options. This could be due to how realistic the coronavirus is, people might distance themselves more from the idea of death, resulting in a decreased mortality salience. This supports Mikulincer & Florian (2000), who found that decreased mortality salience leads to increased symbolic immortality. Thereby the people who chose option A distances themselves from the idea of death, meaning that they do not see the possibility of their own death. It is also worth mentioning that after being exposed to the context of the virus for a prolonged period of time, one could be desensitized to the risks and thus be less scared (Craske, Liao, Brown & Vervliet,

2012), which could explain why more participants chose treatment option A when framed negatively.

Comparison with Tversky and Kahneman (1981)

In addition to this, it was hypothesised that the results would differ from the original study since the current study investigates an actual occuring pandemic, rather than a fictional problem. This hypothesis was confirmed. For the negative framing, there was a significant difference between the results of the present study and the original study. The results could be interpreted that the participants were less inclined to choose the risky option when the scenario was negatively framed, and thus less inclined to 'gamble' with the probabilities of people's lives when it comes to an actual pandemic, as opposed to a fictional problem. This could be related to the limited information about the virus, since the not knowing tends to increase fear, thus minimise risk-taking behaviors (Schimmenti, Billieux & Starcevic, 2020). This could also be affected by availability heuristics since it can create biases in reasoning, which might affect the level of fear (Schimmenti, Billieux & Starcevic, 2020). However, this study did not achieve a preference reversal to the same extent as the original study (Tversky & Kahneman, 1981). It could be stated that the disutility of scenario 2 was compromised due to the constant presentation of the coronavirus (Schimmenti, Billieux & Starcevic, 2020). This could interfere with the set values of disutility.

The result could also be an effect of peoples supposedly increased mortality salience during a pandemic. It could be that the concept of death becomes something more common, which might cause some individuals to distance themselves further from death, as they won't apply the concept of themselves. Whether these differences are due to the fictional nature of the Asian Disease Problem study (Tversky & Kahneman, 1981) and the more realistic approach in the current study with the ongoing pandemic, remains to be determined. It is hard to know if the changes in results are due to that, or if they are due to the consecutive societal development since the 80's. It could also be speculated that the difference is a result of difference between cultures. A study conducted on decision making based on a real situation (as opposed to the fictional problem used in the original asian disease study) regarding ethiopian newborns by Onarheim et al. (2017) people did seem to be inclined to gamble, however if we look at this through a utility theory lens, that could be explained with cultural differences viewing the lives of the newborns in a different way than western countries. If this newborn child puts a strain in your finances, which the baby most likely would do if sick, it could be a liability for the rest of

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the family. However, we speculate that the cultural difference is not in how the life of the infant is perceived, but rather how afraid the parents are. As mentioned earlier, Coget, Haag & Gibson (2011) showed that moderate fear leads to rational decision making, while more intense fear leads to intuitive decision making. As children dying at an earlier age is a more common problem in Ethiopia than in western countries, the parents in western countries react with more fear when they realize their infant is sick, leading to intuitive decision making, whereas we hypothesize that the ethiopian parents have a higher expectancy of it happening and therefore reacts with moderate fear. In other words, we emphasize that it has nothing to do with love for the child, but rather the level of fear, which in turn enables the parents cognitive function.

Moreover, how people perceive the disease, how they evaluate the risk, and attitude towards the victims affect how people reason when it comes to specific diseases (Diederich, Wysynski & Ritov, 2018). When looking at the asian disease used in the Asian Disease Problem, people might have a hard time understanding the effects of a fictional disease. They do not know how dangerous it is for the individual people nor the society, they do not know the symptoms or how they feel about the victims. When it comes to the coronavirus however, people know the symptoms, individual and societal risks. This is probably the main difference between the problem being fictional and real. In addition, people already have a preconceived idea of what the corona virus is since it is mentioned constantly. Only the mentioning of the corona virus could in fact remove the effects of the framing, since the semantics of the COVID-19 is stronger than the positive/negative framing. This suggests that the differences in results between the study by Tversky & Kahneman (1981) and the present study could be due to the fact that the corona virus affect people more personally than what the hypothetical Asian Disease Problem did.

Other findings

The results of question 1 were non-significant but noteworthy, showing that that women tended to score higher on this question compared to men. This suggests that men thought it was better to stay at home when having a cold compared to the men. However, since the sample had an unequal gender distribution, it remains hard to say if there actually is a gender difference, or if the difference is due to the sample. In order to investigate this further, one would need to locate a sample with a more equal gender distribution.

A non-significant but noteworthy link was found between those who had children and scoring low on question 2, which indicates that those with children support a more careful

approach, being more reluctant to visiting elderly relatives even if a young visiting relative shows no symptoms. This relation between having children and being more careful could be due to a number of reasons. We speculate that it is entirely possible the people with children might see children visiting as a threat towards their safety, whereas those who don't have children see an opportunity to visit their loved ones but not be visited themselves, being able to disregard the type of threat someone with children might feel. It is also worth mentioning that this result would support the study of Mikulincer & Florian (2000) in that those with secure social attachment tend to not be as affected by mortality salience, meaning that they have an increased symbolic immortality, wanting to decrease the risk of being exposed to potential death. It is also worth repeating that having a child not necessarily means a good social attachment, but as the question asks for visiting it could be speculated that this indicates a relationship with the child in question, thus explaining the fear of exposure to being infected. It might also be a coincidence, and due to our limited sample, further research on the topic is advised. In addition, there was also a statistically significant connection when scenario framing was excluded between those choosing the risky option, thinking it's okay to visit elderly relatives when not showing symptoms compared to those who chose the safe option. This could be explained as logical, considering that those who want to take risks would also be taking a risk when visiting an elderly relative.

Participants who chose the risky option, independent of scenario, tended to score lower on question 3. This suggests that participants who picked the risky option had a tendency to think negatively about the recommendations on how many people that should be allowed to gather at the same location. One could argue that since they chose the risky option, they are more likely to take risks. This could explain why they tended to think that place limitations are bad. This could however be a result of the specific sample used, and a different result might have been achieved during other circumstances and with a larger sample, implying that replication is necessary for this result to be reliable.

The results for question 4 showed that relationship status was noteworthy (although not significant). This showed that participants who lived together (married or not) scored higher on this question, implying that they thought it was better to not go to a hospital in order to not get infected, compared to people with other relationship statuses. This could be related to the concepts of mortality salience and symbolic immortality (Mikulincer & Florian, 2000), since attachments and relationships tend to decrease the effect of mortality salience, which in turn increases their idea of symbolic immortality. Thereby, there is the possibility that these people

have other coping mechanisms using their social attachments, and therefore aren't as scared. Although, there might be other factors involved affecting this, making it hard to come up with a clear conclusion. An additional noteworthy but non-significant result for this question is that people who chose option B (excluding the scenario framing) tended to score higher on this question, which makes sense. The participants that chose the risky option had a tendency to think it was better to avoid going to the hospital when hurt, which makes sense. Since they chose the risky option, it could be stated that they are more risk-taking, which in turn could mean that they would rather stay at home and take that risk rather than going to the hospital in order to get treatment. This is however solely a speculation, and needs further testing before anything can be established.

A correlation was found between fear of dying if infected by the virus (question 5) and thinking of stocking up on necessary items (toilet paper and canned food). This is reasonable, considering they would want to limit the risk of being infected. One way of limiting getting infected would be to stay at home, and in order to do that it would be advised to have the necessary toilet paper and canned food at home already to be able to avoid making trips out in public. It should also be stated that the correlation could be a coincidence.

No significant results were found for question 6, suggesting that how likely people thought they were to be infected could not be linked with any of the other variables in this study. Had a different sample been used, other results might have been achieved. A better question to ask would have been to ask how likely they thought it was that their loved ones could be infected. If opportunity is given to perform a similar study during similar conditions, this is certainly something that could be examined.

The present study found less fear of death (question 7) in those who were negatively framed compared to those who were positively framed. It is unclear whether the participants used intuitive or rational decision making. By looking at the comments some of the participants wrote after that question, it seems like some picked what 'felt' right, and others wrote long paragraphs about their reasoning. Hence it is hard to establish if the results are due to different decision-making methods. This could be controlled for in further studies, by for example interviewing the participants afterwards, or by letting the participants know that they had a certain amount of time to answer the question (f.e. Diederich, Wyszynski & Ritov, 2018). Another thing to consider is that different studies use slightly different versions of the scenario, making it hard to compare with the original Asian Disease Problem. One could also have included questions regarding more specific types of fears, for example fear of/for the body, the

fear of/for significant others, the fear of knowing/not knowing, fear of taking action/inaction (Schimmenti, Billieux & Starcevic, 2020) in order to get a more detailed view of the participants' fear levels. The results of this question showed that participants who had children scored significantly higher on this question. This could be interpreted that participants with children were more afraid of death. This finding makes sense, since they would want to protect their children and not leave them behind. One could argue that they have more to lose if they were to die, which could make them fear death even more. The results corresponds to the theory by Shentu, Ma & Guo (2018), saying that social attachments make people react differently to crisis situations compared to people with less social attachments, since the people with children responded significantly different compared to people without children. This however contradicts the study by Mikulincer & Florian (2000) which said that people with many good social attachments tend to have decreased fear of death. It should be noted that the study by Mikulincer & Florian (2000) was not made during a disaster or state of emergency. However, having children does not necessarily mean that you have many good social attachments. It does not even have to mean that you have a good social attachment to your children. This could also be affected by the current pandemic in the way that it might make you think more of your loved ones, both fearing for their safety and for your own. Therefore it could be hard to generalise to other situations. Another finding demonstrates that relationship status had a significant difference in how the participants responded to this question, which suggests that the participants who were married were more afraid of dying compared to participants with other relationship statuses. However, one could argue that relationship status does not necessarily influence how good your social attachments are. For example someone who is single can have more deep good quality social attachments than someone who is married, and hence this result might not be reliable. A non-significant but meaningful link was found between the framing for this question, demonstrating that participants who got the negative framing tended to score lower on this question. This could be interpreted that negative framing made the participants less afraid of death compared to those who were framed in a positive way. This supports previous research, regarding the concept of mortality salience. Mikulincer & Florian (2020) found that secure social attachments tend to make you less affected by mortality salience. Since there was a link between social attachment and this question, one could argue that the participants with social attachment shad a lower mortality salience, and thus weren't as affected by the negative framing. It could also be an effect of distancing themselves further from death when thinking of it more, making it seem less likely and therefore decreasing the fear of

dying. A weak correlation was found between age and this question, suggesting that older participants were more afraid to die, which makes sense since older people are more at risk when it comes to this coronavirus.

Results of the present study showed a significant link between higher age, scenario 2 and picking treatment option A in general. As treatment option A is the safe option, and since there is also a correlation between fear of death if infected and high age, this finding is normal. It stands to reason that elderly who have been exposed to negative framing and also think they will die if infected would want to minimize the risk of infection by choosing the risk aversion option. However, the same link between age and treatment option A was exclusive for scenario 2 and not found in scenario 1. Due to the study's limited sample and the fact that there was no sign of any connection between age and scenario 1, we conclude that the finding is probably a coincidence.

Methodology discussion

As for the methodology used, it could be stated that an online survey was an appropriate method to use. Due to the virus, it would be hard to collect data in ways that required us to meet participants in person, which made an online survey the optimal choice. There are however certain problems with using surveys, for example the risk of social desirability bias, as well as response rate bias. We don't know how many people saw the survey but chose not to complete it. As with every online survey, we also don't know if people were being truthful. We also could not clarify the questions if the participants did not understand them; but we did give them the option to mail us with any questions after the survey was done. In addition to this, some people said to us that they almost forgot to hit "send" at the end of the survey. Perhaps there were participants who answered the survey but did not hit send, meaning that we might have gotten replies that were not registered and therefore not used. We do not know if the arrows pointing in different directions could be a cause of bias, but we decided it was less likely than if we had used numbers or letters. There was the option to have two separate surveys with two different links, but it would have been problematic with posting two different surveys since people could do both surveys even if we told them not to. An alternative type of analyzing the survey could have been done by creating an index in order to identify items with the goal of creating a scale with high internal consistency. This was however not used in the present study since the goal of the questions in the survey was to understand the participants' view of the pandemic. If an index was created, the results could have been changed in a meaningful way and this approach

could be considered for future research on the topic. Another interesting factor that could have been investigated was whether the participants had increased risk (due to other illnesses), since this could have affected the results. We chose not to pursue this, partly due to the ethical considerations involved, but also due to the effect it could have had on the framing.

The allocation to the different scenarios was done in a randomised way in order to minimise bias. Since the questions in the survey are hypothetical, and just regarding what the participants think they would do, it is impossible to say whether this is how the participants would have acted if the situation happened for real, which is a general limitation of using surveys. Furthermore, surveys are quick and easy to use, efficient and free.

The present study could be said to have a high ecological validity compared to other studies on the same topic, since it investigates people's thoughts and feelings of an actual pandemic, as opposed to a fictional scenario. However this study probably has a lower external validity, both because of the pandemic, and because of the sample used. The very broad age range of the participants (19 to 82, $M = 35.4$ and $SD = 12.8$) could be said to both have strengths and limitations. On one hand, it is representative of the population, but at the same time there are only 148 participants, meaning that it would be easier to generalise and get a stronger result if it was focused on only one age group. The construct validity of our study is hard to evaluate. Due to many factors such as this being unique public-health situation in Sweden, and the fact that we don't have clear constructs but rather base most of our construct on a previously made study that was conducted several decades ago on a different continent.

Because of a limited sample, it is hard to generalise the results to other populations, suggesting a lower reliability. As a result of the sampling used, there was little control of who participated. Additionally, there is a limited amount of people that we could reach through social media. It might also only be a certain type of people who reply to online surveys, namely people who actually find it interesting and rewarding to participate in studies will click the link, which could create bias. There was a small amount of males in the study, but since a significant gender difference was not found, it could be stated that it does not matter. However we can not say for certain if there had been a significant gender difference if we had had a sample with even gender distribution. Since the survey was written in Swedish, the assumption is made that only people who speak Swedish will reply. Therefore it might be hard to generalise this to other countries and cultures. It is also possible that the same people would respond differently if they were not exposed to a global pandemic, which makes the results regarding fear and decision making difficult to generalise when no pandemic is occuring.

A possible confounding variable that could have influenced the results could be the number of people mentioned in the scenario. In the original Asian Disease Problem, the scenario regarded 600 people. However in the scenario used for this paper, a total of 3900 people were used. We changed the number of people in the scenario, partly because it was our intention to disguise the fact that we copied Tversky & Kahneman's study for our participants - to minimize the risk of it influencing their responses. We also increased the number of people in the scenario due to the present situation of Corona, where a large number of people are reported dead on a daily basis. While 200 people were certainly a lot to use in the original experiment, we hypothesised that if it is reported that for example 120 people have died in the same illness as this study handled, it could affect how the participant replied. While we increased the number of people in the scenario, we remained true to the original study's percentage distribution for the risky option. Worth mentioning is that some of the previous studies on the Asian Disease Problem also change the number of people in the scenario (Diederich, Wyszynski & Ritov, 2018). In order to see the possible effects this change had compared to the original study, one would have to perform future studies concerning the effect of the number of people mentioned in the scenario.

Future research

Because this study only had Swedish-speaking participants, it would be interesting to conduct the same study in other countries in order to compare. For example, do western cultures react in a different way compared to more collectivistic cultures? The research we gathered when performing this study suggests it might not. This could be seen in the study made in Ethiopia about infants health and deciding whether or not to prioritize their health over the financial situation in the family. In addition, different countries experience the pandemic in different ways, and it would be interesting to compare how people in countries that were affected more or less than Sweden. From a theoretical point of view, it could also be rewarding to investigate a real disease in a similar fashion that has not caused such restrictions as corona, since this could have interfered with this study's result regarding realistic vs fictional scenarios. Another potentially interesting study would be to see if the results would differ in a country that has applied quarantine measures, something that has not happened in Sweden at the time of this study. In order to understand other factors involved in framing one could research framing together with other cognitive and motivational processes (Kühberger, Schulte-Mecklenbeck & Perner, 1999).

Conclusion

The results of this paper suggest that a realistic framing effect differs to a fairly large extent from a theoretical one, at least when framed negatively. This study found a difference in decision making between the original Asian Disease Problem study (Tversky & Kahneman, 1981). However it remains difficult to establish whether these differences are due to the fact that we are currently facing an actual pandemic, the framing effect being realistic, or if it is due to other factors we might not have included. In addition, the only question where a notable framing effect was spotted was for question 7, suggesting that the framing did not have as much effect as hypothesised. This could be due to the semantic meaning of the coronavirus, and that the mentioning of the virus itself acted as priming over the framing. However, it should be mentioned that we do not know if the results of the questions were affected by the framing effect - as we do not have a neutral group to compare with.

In conclusion, the results of this study found that decision-making is influenced by framing effect to a fair extent, suggesting that the application of the coronavirus could be thought of as a more realistic Asian Disease Problem.

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Appendix

Appendix A – The original Asian Disease Problem

Problem 1: Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved.

If Problem B is adopted, there is a ⅓ probability that 600 people will be saved, and a ⅔ probability that no people will be saved.

Which of the two programs would you favor?

Problem 2: Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

If Program A is adopted, 400 people will die.

If Problem B is adopted, there is a ⅓ probability nobody will die, and a ⅔ probability that 600 people will die.

Which of the two programs would you favor?

Appendix B – The survey used to collect data for this paper

Enkätundersökning

Den här enkäten används för att samla in data till en kandidatuppsats. Enkäten handlar om beslutsfattande och kommer att ta ca 10 minuter.

Deltagandet är frivilligt och du som deltar är fri att avbryta undersökningen när du vill. Svaren på enkäten kommer att behandlas anonymt och konfidentiellt.

Villkor:
- Du är över 18 år.
- Du är medveten om att enkäten handlar om beslutsfattande.
- Du förstår att deltagandet är frivilligt.
- Du är medveten om att du får lov att avbryta enkäten när du vill.
- Du vet att dina svar är anonyma och att du inte kommer att kunna kopplas till dina svar.
- Du tillåter att svaren hanteras av undersökningsledarna och finns med i vår kandidatuppsats.

För frågor om studien kan du kontakta undersökningsledarna via mo0561ni-s@student.lu.se

Jag har läst villkoren ovan, och jag samtycker till att vara med i studien.
- ☐ Ja
- ☐ Nej

Bakgrund

Ålder: _____

Kön:
- ☐ Man
- ☐ Kvinna
- ☐ Annat/Vill ej uppge

Vilken är din huvudsakliga sysselsättning?

☐ Studerande

☐ Arbetande

☐ Arbetssökande

☐ Arbetssökande på grund av coronaviruset

☐ Pensionär

Vad är din relationsstatus?

☐ Singel

☐ Särbo

☐ Sambo

☐ Gift

Har du barn?

☐ Ja

☐ Nej

Bostadsmiljö

☐ På landet (glesbefolkat, ca 500 invånare eller mindre)

☐ By/mindre samhälle (ca 500 - 10 000 invånare)

☐ Liten stad (ca 10 000 – 50 000 invånare)

☐ Stor stad (ca 50 000 invånare eller mer)

Välj ett av alternativet. Det spelar ingen roll vilket.

☐ <

☐ >

Scenario

Du kommer nu att få läsa ett scenario, och ta ställning till ett dilemma. Observera att det här scenariot är fiktivt, trots att det är baserat på verkliga händelser.

Det har brutit ut en pandemi. Många tappra insatser görs över hela Sverige, men sjukvården är överbelastad. Vi var inte förberedda på detta Coronavirus, men vi anstränger oss för att klara av det.

På ett sjukhus vårdas 3900 personer för coronaviruset. Forskare på sjukhuset har kommit fram till två potentiella behandlingsmetoder mot viruset, behandlingsmetod A och behandlingsmetod B, men de har inte bestämt vilken av metoderna de ska använda.

Om behandlingsmetod A väljs, så räddas 1300 personer. Om behandlingsmetod B väljs, finns det 1/3 sannolikhet att 3900 personer räddas; samtidigt som det finns en 2/3 sannolikhet att ingen räddas.

Vilken behandlingsmetod hade du rekommenderat?

☐ Behandlingsmetod A
☐ Behandlingsmetod B

Hur resonerar du? (Frivilligt)

Scenario

Du kommer nu att få läsa ett scenario, och ta ställning till ett dilemma. Observera att det här scenariot är fiktivt, trots att det är baserat på verkliga händelser.

Det har brutit ut en pandemi. Många tappra insatser görs över hela Sverige, men sjukvården är överbelastad. Vi var inte förberedda på detta Coronavirus, men vi anstränger oss för att klara av det.

På ett sjukhus vårdas 3900 personer för coronaviruset. Forskare på sjukhuset har kommit fram till två potentiella behandlingsmetoder mot viruset, behandlingsmetod A och behandlingsmetod B, men de har inte bestämt vilken av metoderna de ska använda.

Om behandlingsmetod A väljs, så dör 2600 personer. Om behandlingsmetod B väljs, finns det 1/3 sannolikhet att ingen dör; samtidigt som det finns en 2/3 sannolikhet att 3900 personer dör.

Vilken behandlingsmetod hade du rekommenderat?
- ☐ Behandlingsmetod A
- ☐ Behandlingsmetod B

Hur resonerar du? (Frivilligt)

Frågor

1. Under den här corona-pandemin; om någon vaknar och är förkyld (men inte har feber) så borde hen inte gå till jobbet.

Håller inte alls med   1   2   3   4   5   6   7   Håller helt med

Valfri kommentar kring ovanstående fråga:

2. Under den här corona-pandemin; om en person inte har några symptom, så är det okej om hen besöker sina äldre släktingar.

Håller inte alls med   1   2   3   4   5   6   7   Håller helt med

Valfri kommentar kring ovanstående fråga:

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3. Under den här corona-pandemin så finns det numera rekommendationer på hur många personer man bör vara på en plats. Det här är någonting positivt.

Håller inte alls med   1   2   3   4   5   6   7   Håller helt med

Valfri kommentar kring ovanstående fråga:

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4. Under den här corona-pandemin; om någon skadar sig på ett sätt som man i normala fall åkt in till sjukhus för (men som inte är livshotande) så borde hen undvika att åka in för att inte riskera att få Corona-viruset.

Håller inte alls med   1   2   3   4   5   6   7   Håller helt med

Valfri kommentar kring ovanstående fråga:

```



```

5. Under den här corona-pandemin; så köper en person många paket toalettpapper och en stor mängd konserver. Det här är något rimligt.

Håller inte alls med   1   2   3   4   5   6   7   Håller helt med

Valfri kommentar kring ovanstående fråga:

6. Hur sannolikt tror du det är att du skulle smittas av Corona-viruset?

Inte alls sannolikt   1   2   3   4   5   6   7   Väldigt sannolikt

Varför tror du så? (Valfritt)

7. Om du skulle smittas av Corona-viruset, hur rädd är du att du kommer att dö?

Inte alls rädd   1   2   3   4   5   6   7   Väldigt rädd

Varför tror du så? (Valfritt)

Tack för din medverkan!

Tack för att du deltagit i vår studie om framing-effect och beslutsfattande.

Studien kommer att vara klar i början av Juni. Om du har några frågor, eller vill veta resultatet av studien kan du kontakta undersökningsledarna via mo0561ni-s@student.lu.se

Tack för din medverkan!

Moa Nilsson och Robin Eriksson,

Kandidatkurs i Psykologi VT20

PS. Glöm inte att klicka på skicka!

Appendix C - Demographics

Table 3: Showing the mean age of participants who chose which treatment option.

	Treatment option A	Treatment option B
Scenario 1	40.0 years	37.8 years
Scenario 2	35.1 years	28.6 years

Total mean age: 35.4

Total standard deviation: 12.8.

Table 4: Showing the percentage distribution of the participants' work status

Status	Percentage
Unemployed	2%
Employed	53%
Student	42%
Retired	3%

Table 5: Showing the percentage distribution of if the participants had children or not

Do you have children?	Percentage
Yes	44%
No	56%

Table 6: Showing the percentage distribution of the participants' relationship status

Relationship status	Percentage
Married	24%
Single	30%
Significant other, non-shared housing	10%
Significant other, shared housing	36%

Table 7: Showing the percentage distribution of the participants' living environment

Living environment	Percentage
Countryside (less than 500 inhabitants)	6%
Town (500-10 000 inhabitants)	16%
Small city (10 000 – 50 000 inhabitants)	16%
Large city (50 000 inhabitants or more)	62%