The effects of owning a pet on general self-efficacy in a negative life-changing scenario

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Abstract

Pets play an important role in a lot of people's life. Different studies have been performed on the relation between pets and personal determinants, and on the relation between pets and physical factors. There are not many studies performed on the relation between pet ownership and socio-cognitive factors, like self-esteem and general self-efficacy. Therefore, the general research question of this study is: Does owning a pet have an influence on general self-efficacy of the pet owner when exposed to a negative scenario? General self-efficacy is the belief that one can perform a simple or difficult task, in various domains of human functioning. Self-esteem and general self-efficacy are closely related and study results have shown that self-esteem can be increased with the presence of a pet. Therefore, pets might also have an influence on general self-efficacy.

For this study, it was chosen to use an online survey with a manipulation. The manipulation consists of a negative real-life scenario, to trigger general self-efficacy in the participants. The participants were divided in two groups: the control group and the negative scenario group. A total of 150 participants completed the survey generating the data which was used for the analysis.

The analysis was done in IBM SPSS 25. To test the hypotheses, independent samples T-tests and a Two-way ANOVA were performed. For the relations between variables, linear regressions were performed. The results showed that there is no significant difference between pet owners and non-pet owners on general self-efficacy when exposed to a negative scenario. There was a significant difference between participants who read the negative scenario and the control group on general self-efficacy. The negative scenario group scored higher on general self-efficacy than the control group.

This study has a few limitations and recommendations. Most of the participants were students, older participants might give a different result. Furthermore, a more realistic scenario and more representative group of participants who have daily contact with their pet(s) may alter the results. Finally, a study about the effects of a negative scenario on general self-efficacy might be interesting.

Introduction

Many people around the world keep pets for company and fun. Several studies have been done on the effects of owning a pet on the personal determinants and the physical well-being of a person (e.g. Barba, 1995 & Peacock et al. 2012). Barba (1995) mentions that owning a pet has a positive effect on lowering the blood pressure and creating a stable heart rate. Where Peacock et al. (2012) mention that high pet attachment can be detrimental to distressed people.

As mentioned earlier, pets can have a positive effect on health. A study from Allen, Shykoff and Izzo (2001) demonstrated that owning a pet could lower the blood pressure, where medication could not. In this case the high blood pressure was caused by mental stress. And in general, it is even concluded that owners of cats or dogs have a significantly lower blood pressure than non-pet owners (Allen, Blossomish & Mendes, 2002). Levine, et al. (2013) showed in their study that pet owners, and particularly dog owners, have a reduced risk of getting a cardiovascular disease.

A different study shows that the presence of a dog during the performance of an object- categorization task done with pre-schoolers, results in a better performance, than when there was no dog present. The children made less errors with the presence of a dog (Gee, Church & Altobelli, 2010). These studies indicate that pets have a positive influence on people.

Another study has shown that the presence of animals can reduce the perception of pain (Sobo, Eng & Kassity-Krich, 2006). Animal assisted therapies have shown that pets can positively influence the social skills of children with autism (O'Haire, McKenzie, Beck & Slaughter, 2013). This result is strengthened by the results of the study of Vidović, Štetić and Bratko (1999). They showed that children who own a pet score higher on socio-emotional development than children who do not own a pet. A study from Pongrácz and Szapu (2018) show that cat owners develop good socio-cognitive skills towards their cats. These skills could also be used in everyday life. These studies are examples of effects of animals on different social and mental abilities of a person.

These studies show that pets can have positive effects on humans, both physical and mental. They also show, that pets might have a positive effect on socio-cognitive factors, like the higher socio-emotional development in children with pets (Vidović, Štetić & Bratko, 1999). Less is known about the kind of socio-cognitive factors, like self-esteem and general self-efficacy, which are possibly connected to mental and physical conditions described in the

studies above. Self-esteem is an important factor in human life, because it is a central element in different constructs. A few of these constructs are motivation, performance and well-being. Esteeming one-self often relates to more effective behaviour and therefore better performances in life (Deci & Ryan, 1995). General self-efficacy is also important, as it helps a person to tackle difficult situations or cope with dangerous and stressful scenarios (Luszczynska &Schwarzer, 2005). Therefore, it is important to study these kinds of socio-cognitive factors.

Since there is little known about other socio-cognitive factors, the question arises which other factors can be influenced by pets. Therefore, the general research question of this study is: Does owning a pet have an influence on general self-efficacy of the pet owner when exposed to a negative scenario?

Theoretical framework

Firstly, an explanation of what general self-efficacy is will be given. Secondly, different types of factors which have been proven to influence general self-efficacy will be discussed. General self-efficacy is the belief that one can perform a simple or difficult task, in various domains of human functioning (Schwarzer, 1992). Bandura (1997) stated in his book *Self-efficacy: The exercise of control*, that self-efficacy is related to the beliefs of people about their ability to influence events that affect their lives. He says that this core belief is the foundation of human motivation, accomplishments and emotional well-being. When people do not believe that by their actions, they can reach their desired goals, people have little motivation to take action or face difficulties. Other factors might have an influence on a person's actions and have a motivating effect, but they are all linked to the core belief that people can make differences by their own actions. Bandura (1997) showed with this knowledge, how important self-efficacy is.

General self-efficacy is highly correlated in a positive link with self-esteem, optimism and self-regulation. The negative associations are with depression and anxiety (Luszczynska, Gutiérrez-Doño & Schwarzer, 2005). Therefore, it has an important influence in the life of a human. According to Scholz, Doña, Sud and Schwarzer (2002) general self-efficacy is a globally occurring concept that exists in many different cultures. This also suggests that it is an important feature for the functioning of a human. An example of this in daily life, shows the study of Annesi (2001). The more self-efficacy a person has, the better

that person can maintain his or her diet. Bandura, Barbaranelli, Caprara and Pastorelli (1996) showed that children with a higher amount of self-efficacy achieve better academic results.

Different studies have been performed to find factors that influence general self-efficacy. Performances in the past, verbal persuasions and psychological state have an influence on general self-efficacy (Johnson, 2017). By the use of social comparison, people gain information. They create, by using this information, a form of self-evaluation and with that they create self-efficacy perceptions. Steyn and Mynhardt (2008) on the other hand showed that self-efficacy is created by self-referenced information instead of social comparison. This means that people have the tendency to see their own acts and ideas as a reference for self-efficacy and that this information is more important than the information of the people in their surroundings. In a study with elderly people it is shown that the elderly who live together with their wife or husband have a higher amount of general self-efficacy then elderly who live alone, with their siblings or children. It seems that the presence of a wife or husband plays an important role in the amount of general self-efficacy (Imani, Torki, Zamani & Ebrahimi, 2014). When looking at this study, it can also work the other way around. The loss of a husband or wife could also lower the amount of self-efficacy of the remaining partner. The partner can feel less competent, because an important supportive factor is gone. Though, this could also be a result of the loss of the husband or wife being a high negative impact event. So, self-efficacy can be influenced by different factors and this can also indicate that there are more factors to find that can have an effect on general self-efficacy.

Furthermore, there have been done some studies about self-esteem and the relation to pets. Hajloo (2014) showed that self-esteem and general self-efficacy are closely related in humans. McConnel et al. (2011) showed in their study that pets have a positive influence on self-esteem in humans. As self-esteem and general self-efficacy are related, owning a pet might also have an influence on general self-efficacy and might be another factor that gets influenced by pets in human beings.

Last year, a study was done about the influence of owning a pet on general self-efficacy (ten Berge, 2018). The General Self-Efficacy scale form Schwarzer (1995) was used to measure the amount of self-efficacy. This study did not give a significant result that owning a pet plays a role in the amount of self-efficacy a person has. Therefore, this study has a different approach to test if there is a significant difference between pet owners and non-pet owners.

The studies described in the section above, show factors that can trigger or influence general self-efficacy. The study that showed that children perform better in an ordering-task when there is a dog present, indicate that there is a relationship between the two variables. But the cause of this relationship and this result is not shown. So, the underlying factor is not identified yet. A possible factor may be general self-efficacy as the performance of a child can improve when the general self-efficacy of the child has increased by the presence of the dog. This could fit, when looking again at the definition of general self-efficacy: people belief in themselves that they can perform a certain action to reach their goal (Bandura, 1997). The same occurs in other studies, they prove that there is a connection between pets and the improvement in performance or behaviour, but the why question remains unanswered. To answer the why question, this study is focusing on the deeper framework and what is really influencing the behaviour of people.

All these studies show that there are multiple factors that influence general self-efficacy or are influenced by general self-efficacy. As mentioned earlier, self-esteem is related to general self-efficacy and also the positive relation between pets and self-esteem has already been proven (Hajloo, 2014) (McConnel et al., 2011). Even though a small study was performed last year about this subject and did not give a significant result, the link between general self-efficacy and pets is still assumed. Therefore, it is interesting to test for a significant relationship with a different approach.

This study will have a different set up than the one from last year (ten Berge, 2018). This will be done to see if with a different starting point a different result can be achieved. This will be done using a negative scenario, before filling in the general self-efficacy scale. In a negative situation, a high amount of general self-efficacy is useful. It helps to think clear and act in the most sufficient way (Paton, 2001) (Grothmann & Reusswig, 2006). Therefore, a negative scenario might trigger or increase general self-efficacy and pet owners might react differently in such a situation than non-pet owners. So, a different result is expected than the result from ten Berge (2018).

The obtained information, the theories and relations and the new design as described in this introduction lead to the following hypotheses:

- Pet owners will show more general self-efficacy than non-pet owners.
- Pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who did not read a negative scenario.
- Pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who read a negative scenario.

- Pet owners who score higher on the pet attachment scale and who read a negative scenario, will score higher on the New General Self-efficacy Scale than pet owners who score lower on the pet attachment scale and who read a negative scenario

Methods

Study design & Procedure

For this study it is chosen to use an online survey with an embedded experimental design with two conditions (manipulation versus control), to measure general self-efficacy. Each participant was asked to fill in the survey by themselves. Filling the survey was possible on any device, as long it was connected to the internet. The participants were welcomed in the questionnaire and asked to read the instructions carefully. Then they were asked to read and agree on the informed consent to be able to participate in the questionnaire. After that, the participants were asked to imagine themselves in the scenario that they were going to read on the next page, this is the manipulation scenario. The manipulation that was used is a negative scenario at the beginning of the survey and after that the general self-efficacy of the participant will be measured using a scale.

To see whether the negative scenario was perceived as negative by the participants, a question was asked about this. A 5-point Likert scale was used from 'extremely negative' to 'extremely positive'. Overall the participants indicated the scenario as extremely negative (N= 67, M= 4.57).

The participant then needed to fill in the New General Self-efficacy Scale (Chen, 2001). The negative scenario is introduced to see if pet owners react differently in a difficult situation than non-pet owners.

The control group was used to check whether the negative scenario indeed gave a different result compared to the negative scenario group. The control group did not get the negative scenario before filling in the New General Self-efficacy scale. Then the participants needed to answer some questions about demographics, like age, gender and nationality. After these questions the participants were asked to enter the type of pets (only cat and dog owners will be relevant in this study) they owned and the number of contact hours they had with their pets. Furthermore, their relation with their pets was measured by making use of a pet attachment scale (See Appendix). When the questionnaire was finished the participants were thanked for their participation and the opportunity was given to receive more information about the study by sending an email to the researcher.

Participants

The study included 150 participants between 18-70 years in total, of which 25 % was male and 75% was female. Most of the participants were in the age group of 18-30 years. Within

this group of 150 participants, there were participants who did not own a pet (45%) and participants who did own a pet (55%). Only the participants with a dog or/and cat were seen as pet owners and only their data was used for the analysis. The participants who did not own a pet were the non-pet owners group. In total, 259 participants completed the survey, but the data of 109 participants could not be used for analysis due to the study exclusion criteria. The exclusion criteria were: 1. Own a cat or dog, no other pet. 2. The survey needed to be filled in completely. Participants who got a negative scenario, belonged to the negative scenario group and participants who got no negative scenario belonged to the control group. More information about the participants can be found in Table 1.

Table 1

Information about the participants

	Pet owners	**Non-pet owners**	**Control group pet owners**	**Control group non-pet owners**
Total amount	37	30	45	38
Women	30	19	37	27
Men	7	11	8	11
Dutch	7	10	12	21
German	27	30	18	17
Other	3	2	3	0
Cat(s)	9	-	7	-
Dog(s)	19	-	27	-
Cat(s) and dog(s)	6	-	3	-
Other	3	-	9	-

Materials

The negative scenario acted as a manipulation in this study, was the following: You live in a small city close to one of the major rivers (Rhine, Meuse or Waal). The area you live in will be flooded due to heavy rain and snow in Switzerland, Southern Germany, and France a week from now if the government does not come up with a solution to build higher dikes. You are

scared that you have to leave your house and move away. You grew up in that area and have a lot of memories there. Now you have to leave these behind even though you do not want to. A few days before you have to leave, you receive a letter from the government. This letter announces that they have to inform all the citizens that they did not manage to find a solution for building up the dikes. Therefore, you have to leave your house behind because the water level in the river is likely to reach a level that it will flood the whole area and your city.

The New General Self-Efficacy Scale from Chen (2001) is used to measure the amount of general self-efficacy of the participants (See Appendix). It has 8 items that measure to what extend people believe in themselves in difficult situations. One of the statements given in the New General Self-efficacy Scale is: "I will be able to achieve most of the goals that I set for myself". The participants should indicate on a scale from 'strongly disagree' to 'strongly agree', how they feel about this statement. The internal consistency reliability of the scale is high with α=.86 and .90. A test-retest showed that the scale is stable with r=.67. So, it can be stated that this scale is reliable. For this study, also the Cronbach's alpha was calculated. For the New General Self-efficacy Scale in this study, it can be said that the measure is reliable (α=.86).

The pet attachment scale is used in this survey, to see to what extent the participant was attached to his or her pet(s). A reliability test was done and it could be concluded that the pet-attachment scale is reliable (α=.66).

Before starting the analysis, a Q-Q plot is made to see if the data of the New General Self-efficacy Scale was normally distributed, (see Figure 1).

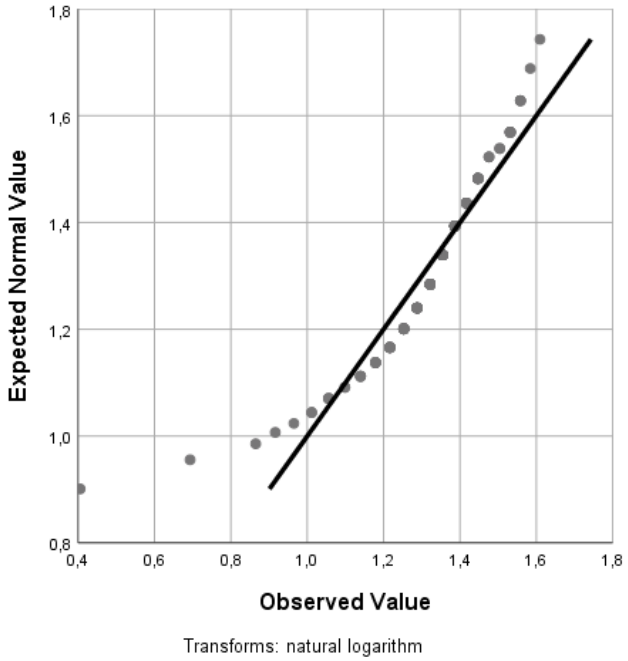

Figure 1 Q-Q plot of general self-efficacy

The online program Qualtrics was used to create the questionnaire. The questionnaire was uploaded on SONA-systems of the University of Twente, to allow students to participate. Furthermore, people could use the link to the questionnaire on Qualtrics to participate. Small cards were handed out with the QR-code and the link to the questionnaire so people could complete the survey at any suitable time on their own computer or mobile phone.

For the data analysis, IBM SPSS Statistics 25 is used.

Results

In Table 2 some descriptive statistics and correlations of the variables pet ownership, the pet attachment scale and the general self-efficacy scale can be found. The number of participants, means, standard deviations and correlations are given for each variable. The correlations in this table show whether the variables are correlated to each other. A correlation of zero means that there is no correlation. A correlation between .01 and .29 is categorized as a weak correlation. A correlation between .30- .69 is considered moderate and a correlation between .70- 1.00 is considered a strong correlation. The same applies for negative correlations. With a positive correlation, both variables have the same direction. For example, person 1 moves to the right and the person 2 also moves to the right. With a negative correlation, the variables are directed in the opposite way.

Table 2

Descriptive Statistics of pet ownership, general self-efficacy and pet attachment in the negative scenario group or control group.

	N	M	SD	Pet ownership	Pet ownership CG	GSE	GSE CG
Pet ownership	67	-	-	-	-	-	-
Pet ownership CG	83	-	-	-	-	-	-
GSE	67	3.90	0.49	0.09	-	-	-
GSE CG	83	3.71	0.56	-	-0.24	-	-
Pet Attachment	39	4.68	0.46	-0.20	-	-0.08	-
Pet Attachment CG	44	4.64	0.46	-	-0.10	-	0.04

*Note: For the general self-efficacy, a score of 3 is average. A score of 5 is the maximum and a score of 1 is the minimum.

For the pet attachment, the same applies.

** Note: CG means control group, GSE means General Self-efficacy

***Note: Pet ownership are all pet owners and non-pet owners together.

To test the hypothesis as stated in the introduction and to answer the main research question, independent sample T-tests were used. For the first hypothesis, pet owners will show more general self-efficacy than non-pet owners, general self-efficacy was used as the test variable. For the grouping variable pet ownership was used. The results show that there is no significant difference between the two groups; t(148)= -.22, *p*= .83. This corresponds with

the small correlation between the two variables; $r = 0.09$ (see Table 2). This means that pet owners do not significantly score higher on the general self-efficacy scale than non-pet owners.

For the second hypothesis, pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who did not read a negative scenario, a two-way ANOVA is performed. Four groups are compared, negative scenario/pet owners, negative scenario/non-pet owners, control group/pet owners and control group/non-pet owners. The dependent variable is general self-efficacy and the fixed factors are negative scenario group/control group and pet owner/non-pet owner. The results show that there is a significant difference between the negative scenario group and the control group on their score of general self-efficacy; $F(149) = 5.35$, $p = .02$. The negative scenario group scored higher than the control group. There is no significant difference between pet owners and non-pet owners on their score of general self-efficacy; $F(149) = .11$, $p = .74$. There is no interaction effect between negative scenario/control group and pet owner/non-pet owner; $F(149) = .41$, $p = .52$. This means that the difference between the negative scenario group and the control group on general self-efficacy is not influenced by owning a pet or not.

The third hypothesis, pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who read a negative scenario, the data is split on the variable negative scenario. For the independent sample T-test, the test variable was general self-efficacy and for the grouping variable, pet ownership was the variable. The results show that there is no significant difference between the two groups; $t(65) = -.71$, $p = .48$. This means that pet owners who read the negative scenario did not score significantly higher than non-pet owners who read the negative scenario.

For the last hypothesis, pet owners who score higher on the pet attachment scale and who read a negative scenario will score higher on the New General Self-efficacy Scale than pet owners who score lower on the pet attachment scale and who read a negative scenario, the data was split again on the negative scenario variable and on the variable pet ownership. The test variable was general self-efficacy and the grouping variable was pet attachment. The results show that there is no significant difference between the two groups; $t(37) = .40$, $p = .69$. This significance level corresponds with the weak correlation of the two variables in Table 2 [$r = -.08$]. This means that pet owners who scored higher on pet attachment do not significantly score higher on general self-efficacy than pet owners who scored lower on pet attachment.

Additional analyses

A few regression analyses have been performed to see if there are relationships between different variables. A linear regression with the independent variable 'pet ownership' and dependent variable 'general self-efficacy' was done. For this regression, the control group and the negative scenario group were used. The results show that there is no relation between pet ownership and general self-efficacy; $F(1, 148)$, $p = .83$, $R^2 = .01$.

For the next part, the control group was left behind (Table 3). A linear regression with 'pet ownership' as independent variable and 'general self-efficacy' as dependent variable was used. The results show that there is no relation between these two variables; $F(1, 65) = .50$, $p = .48$, $R^2 = -.01$.

The following linear regression was done with independent variable 'pet attachment' and dependent variable 'general self-efficacy'. The results show that there is no relation between these two variables; $F(1, 37) = .25$, $p = .62$, $R^2 = -.02$.

Table 3 also shows the results of the linear regression of 'the amount of contact hours the participant had with his or her pet' and 'general self-efficacy'. Also, the results for 'cat owners' and 'general self-efficacy' and for 'dog owners' and 'general self-efficacy' are shown in Table 3.

Table 3

Linear regression results

Independent variable	**Dependent variable**	***r***	**B**	**t**	***p***	***R²***
Pet ownership	General self-efficacy	0.09	0.09	2.27	0.48	0.01
Pet attachment	General self-efficacy	0.08	-0.09	-0.50	0.62	-0.02
Amount of contact hours	General self-efficacy	0.21	0.01	1.27	0.21	0.04
Cat owner	General self-efficacy	0.05	0.07	0.37	0.71	0.002
Dog owner	General self-efficacy	0.05	0.01	0.08	0.94	-0.03

Discussion

Conclusion

Independent sample t-tests and two-way ANOVA's are performed to test the hypotheses stated in the introduction and to answer the research question: Does owning a pet have an influence on general self-efficacy of the pet owner when exposed to a negative scenario?

The first hypothesis, pet owners will show more general self-efficacy than non-pet owners, is rejected. The results show that there is no significant difference between the two groups, pet owners and non-pet owners, on their score for general self-efficacy.

The second hypothesis, pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who did not read a negative scenario, is rejected. There was no significant difference between the two groups and therefore pet owners did not score higher than the non-pet owners.

These results lead to the third hypothesis, pet owners who read a negative scenario score higher on the New General Self-efficacy Scale than non-pet owners who read a negative scenario, which is also rejected. There was no significant difference between the two groups.

As for the last hypothesis, pet owners who score higher on the pet attachment scale and who read a negative scenario, will score higher on the New General Self-efficacy Scale than pet owners who score lower on the pet attachment scale and who read a negative scenario, also this hypothesis is rejected. The results showed no significant differences between the two groups.

With this information the main research question can now be answered. Does owning a pet have an influence on general self-efficacy of the pet owner when exposed to a negative scenario? No, owning a pet does not have an influence on general self-efficacy when exposed to a negative scenario. All the hypotheses are rejected and results do not show that pet owners have more general self-efficacy in a negative scenario. The amount of pet attachment made no significant difference between pet owners and their score on general self-efficacy. So, therefore it can be concluded that owning a pet does not have an influence on general self-efficacy when exposed to a negative scenario.

The first hypothesis is rejected, because there was no significant difference between the two groups. Pet owners in this case could have read the negative scenario or could have been part of the control group. The same is applicable for the non-pet owners. In general, the

same questions were asked as in the study from ten Berge (2018). The difference is made with the use of the New General Self-efficacy Scale from Chen (2001) and including participants who read a negative scenario. These two elements made no change to the outcome, because pet owners do not score significantly higher on general self-efficacy then non-pet owners. Testing within different age ranges may give a significant result as it could be that people who are older show more general self-efficacy because they have more experience in life and are therefore more self-confident about what they think they can manage in life, independent of owning a pet. This was also mentioned in the study of ten Berge (2018). Now, almost all the participants are in the age range of 18 till 25. For a follow up study, it might be interesting to look at participants that are in different age ranges. It was tried in this study to get participants of different ages, but the survey was mostly filled in via SONA-systems, which is only available for students.

The second hypothesis is also rejected. Four groups were compared and results show that owning a pet does not influence the difference of general self-efficacy between the negative scenario group and the control group. The results did show that there was a significant difference between the negative scenario group and the control group on general self-efficacy. The negative scenario group scored higher, but this was not influenced by owning a pet or not. It is also an unexpected result, it could be just by reading the negative scenario, people show a higher amount of general self-efficacy. So, this might be interesting to test in further research what could explain or cause this shown difference. There was a flooding in the southern parts of The Netherlands a week before data collection and during data collection. This could have increased participants' abilities to imagine themselves in negative scenario, possibly resulting in showing more general self-efficacy. But on the other hand, most of the participants were students from Enschede. In this area floods almost never occur and most participants so young that in their life a flood has certainly not happened. So, for them it may be harder to imagine this scenario happening to them. Presenting a different, more realistic scenario in the survey compared presenting the flood scenario could have altered the results. Though, in this study it was useful to take a negative scenario about flooding, because it was only conducted in The Netherlands. When distributed in other countries, another scenario could have been more effective. Since there is a significant difference in self-efficacy between the negative scenario group and the control group, more research is needed to explore the relation between negative scenario's and general self-efficacy.

For the third hypothesis, it was expected that pet owners who read the negative scenario score higher on general self-efficacy than non-pet owners who read the negative scenario. The results do not show this. Negative scenario readers? did score higher than the participants in the control group, but within the negative scenario group there was no significant difference. So, pet owners do not show more general self-efficacy in negative scenario than non-pet owners in a negative scenario. General self-efficacy is a relative stable factor and personality aspect and these results confirm this by showing that pets do not have much effect on it (Judge & Bono, 2001) as no differences were found between pet owners and non-pet owners. Nevertheless, pets might have influence on other cognitive factors, which needs further research.

The last hypothesis is rejected. Pet owners who read the negative scenario with higher pet attachment do not score higher on general self-efficacy than pet owners with lower pet attachment. It is likely that differences occur within the pet owners group. Pet owners who are highly attached could show more general self-efficacy than pet owners who are less attached. That there are no differences found in this study, could be related to the large number of participants being students who do not have a pet or do not live with their pets at this moment. This might also change the relationship they have with their pets. They are attached to them, but do not have a lot of contact hours as they probably do not have contact with them every day. Therefore, it is interesting for a follow up study to look at participants who live with their animal every day and not only in early life or during the weekends and vacations. There is a regression analysis performed with the amount of contact hours and general-self efficacy. This showed no significant relation between the two variables, but the contact hours per week were quite low, with an average of 6 hours. So, it can still be interesting to study this further.

Even though Hajloo (2014) showed that self-esteem and general self-efficacy are closely related and that self-esteem has an positive influence on self-esteem in humans (McConnel et al. 2011), no relation between pets and general self-efficacy could be shown in this study.

Further limitations and recommendations

More limitations and recommendations to this study, which are not mentioned yet, are given below.

The negative scenario was introduced to increase general self-efficacy amongst the participants, but the research question is: Do pet owners show more general self-efficacy in a

negative scenario? With this research question determination whether pet owners act different in a negative scenario than non-pet owners is the most important. Not to increase general self-efficacy by reading a negative scenario. So, it is not used to increase general self-efficacy, like it was supposed to during the first idea. Though, the results show that there was a significant difference amongst the participants, so even though it is often assumed that general self-efficacy cannot be changed, this study shows that it is possible. Therefore, further research is interesting to perform to determine what factor(s) might influence the increase of general self-efficacy in a negative scenario.

Another point is the reliability of the pet attachment scale ($\alpha = 0.66$). It can be said that it is reliable, but according to the rule of thumb a scale is reliable when $\alpha > 0.7$. In this study a scale with $\alpha > 0.6$ was also suitable to use.

For a follow up study or a similar study, it would be interesting to use a more realistic scenario, so that the participants are better able to imagine themselves in the situation. Furthermore, it may be interesting to get participants with a higher age and participants that live with their pets the whole week. This would be interesting, because they may have a different amount of general self-efficacy related of their life experience and type of relationship with their pet. Finally, a study about the relation between negative scenario's and general self-efficacy can give interesting material.

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Appendix

The New General Self-Efficacy Scale by Chen (2001):

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

1. I will be able to achieve most of the goals that I set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavour to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.

Pet attachment scale:

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

1. I miss my pet when it is not around me.
2. I am happy when I am with my pet.
3. I like to spend time with my pet.
4. I consider my pet as part of the family.