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Guilt is never to be doubted? A novel experimental procedure

***Abstract**: The literature shows that researchers used a wide variety of types of guilt manipulation. A common feature of these studies was that the subjects were not able to doubt their guilt. Additionally, these methods did not take into account the psychometric measurement of this emotion, as well as the possibility of simultaneously inducing other feelings, such as sadness or anger. In a carefully designed experiments, we found a method that is approachable to arrange, which additionally seems to be free from these methodological flaws. In our study participants were shown an arranged message suggesting that the experimenter's work has been destroyed. In experiment 1 (N = 44), we showed that the method proposed by us significantly affects guilt. In experiment 2 (N = 89), we replicated our result, additionally demonstrating that our procedure significantly affected only the emotion of guilt (compared to other emotions) - which is a novelty. It also has been shown that complying with the request of the victim (conditional forgiveness) makes us feel less guilty, but it does not restore liking to this person - which was established by previous research. The discussion section summarizes the results, indicates their limitations, and proposes directions for future research.*

***Keywords**: guilt, forgiveness, liking, social influence*

Introduction

„My guiding principle is this: Guilt is never to be doubted."
- Franz Kafka, *The Penal Colony*

It seems evident that Franz Kafka had many reasons to write these words. We feel guilty for things we feel personally responsible. However, what is the most important in science is the reflexive undermining of these seemingly apparent truths and thinking about effective methods of their verification. The words of this famous poet can be interpreted in such a way that a sense of guilt arises when an individual evaluates their behaviour as a lack of success, focusing on specific features or actions that led them to a failure (Lewis, 2010). In other words, an individual cannot question their contribution to the negative result of their actions. Most researchers who used guilt in their research tend to follow Kafka's idea. The methods used so far, firstly, have placed great emphasis on the fact that the participants would not be able to doubt their guilt, which may make it difficult to arrange a credible experimental situation and control throughout the experiment. Secondly, they did not report psychometric measurements of this emotion (eg., Wallace & Sadall, 1966; Konoske, Staple & Graf, 1979; Cunningham, Steinber & Grev, 1980; Regan, Williams & Sparling, 1972; Gruszecka & Piotrowski, 2010; Freedman, Wallington & Bless, 1967) or did this measurement, but this report was not combined with other emotions (eg., Kelln & Ellard, 1999). The question arises: Can we effectively and measurably induce this emotion and only this emotion even if the person's fault is not apparent?

Guilt in experimental research

Before answering this question, it is worth reviewing the procedures used so far, which will help us understand the nature of guilt phenomenon. In their seminal paper John Wallace and Edward Sadalla (1996) described the experimental guilt-inducing procedure. Their idea was based on leaving the participant in the laboratory together with the experimenter. In order for the procedure to be successful, the experimenter had to persuade the participant to use this equipment. The fulfilment of the experimenter's prompting

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caused damage of the equipment and, consequently, led to the participant's guilt. The participants' full cooperation with the experimenter was crucial for the success of the whole process.

A year later, Freedman et al. (1967) introduced the experimenter's helper who urged participants to lie to the experimenter. As in the previous research, the forceful persuasion of the experimenter and the participant's fulfilment of an immoral request was necessary to induce guilt. Once again, the undoubted and direct action of the participant was crucial.

In the same vein, Konoske et al. (1979) arranged the experimental situation in such a way that the participants were convinced that they accidentally knocked out a stack of perforated IMB computer cards, whose order could not be restored. As in previous examples, the experimenter's assistant needed to provoke the direct act of the participant that led to the harm, leaving no space for the participants' doubt in their guilt.

In the manipulations described above, the participant's consent to commit an immoral act made the denying of guilt rather impossible. Therefore, it is worth mentioning examples that use a slightly different paradigm. In those other examples, a greater emphasis was put on the direct action that led to failure rather than on the experimenter's persuasion.

In the procedure by Cunningham et al. (1980) and Regan et al. (1972), the participants were asked to take a photo of the experimenter. The camera, however, was prepared in such a way that the fulfilment of the request caused its damage. In this case, the camera broke down in the hands of the examined person immediately after pressing the capture button. As we can see, this time, the researchers evoked guilt using more sophisticated manipulation. This procedure did not imply the necessity to persuade the participant to commit an immoral act, which, in consequence, evoked guilt. One may say that the procedure with the camera (Regan et al., 1972; Cunningham et al., 1980) presupposed the possibility of the participants denying their guilt. Nonetheless, direct action was still present. That allowed the participants to focus on the action (pressing capture button) that led them to failure (Lewis, 2010) and, consequently, to a sense of guilt.

A further example of a procedure that does not include the experimenter's prompting to commit an immoral act by the participant but focuses on the action that led to failure is Kelln and Ellard's (1999) study. In their manipulation, entrants were induced to break a piece of electronic equipment during an ostensible memory study. In other words, its participants felt guilty of damaging the scientific apparatus they used when performing the memory task. This unquestioned mistake by the participants was a direct reason for the (arranged) failure of the device, which resulted in the necessity to stop the experiment.

The idea used in the previous study was later modified and used by Gruszecka and Piotrowski (2010). In their study, the participants completed a series of questionnaires on the computer. To make this manipulation work, before the experiment the experimenter asked the participants not to click anything during his absence in the room. Then the experimenter abandoned his laboratory, leaving the participants to complete the surveys. However, the procedure was programmed in such a way that after the second question in the second series, the computer encountered an error with three possible choices: *Abort, Cancel, Finish*. Choosing any option suggested to the participant the loss of the previously collected data by the experimenter, i.e., the nullification of his work. Again, we can see that the procedure assumed that the participants had to do something; in this case, choosing one of the options displayed on the screen in the absence of the researcher.

As we can see, methods used in the described studies, firstly, did not leave the participants to doubt their guilt. Secondly, no psychometric measurement of the sense of guilt was performed in any of the studies described. The only exception was Kelln and Ellard (1999). The dependent variable in these cases were mainly social consequences based on the principle of reciprocity (see Cialdini et al., 1975) and the interpersonal consequences of forgiveness (Kelln & Ellard, 1999, Gruszecka & Piotrowski, 2010). Thirdly, the problem with the procedures described above are also the limitations of practical utility resulting from an experimental situation which is difficult to arrange, as well as hindered control over the experiment, such as the participants' unpredictable behaviour. (eg., Wallace & Sadalla, 1966; Konoske et al., 1979; Cunningham et al., 1980; Regan et al., 1972).

Forgiveness, liking and guilt

When planning a psychometric measure of guilt, forgiveness and liking should also be taken into account. Forgiveness is defined as the choice of giving up on revenge, resentment or severe judgment against the person who caused the harm (Enright, Freedman & Rique, 1998). This process involves reducing adverse reactions and increasing positive reactions to the person who caused harm in the sphere of affect, cognition or behaviour (Enright and Fitzgibbons, 2000).

Kelley (1998), in his work, indicates that people forgive in three different ways. The first form he specifies is direct forgiveness, in which forgivers clearly communicate to the perpetrator that they have forgiven them. The second form is indirect forgiveness, in which individuals do not directly communicate forgiveness; forgiveness is rather "simply understood" (Kelley, 1998, p. 264). And finally, the third form, which is called the conditional forgiveness, i.e. forgiveness under certain conditions, e.g. permission to take action to compensate for the damage caused.

Inducing the feeling of guilt in the participant lowers their power status (Gruszecka and Piotrowski, 2010), and forgiving can further increase the strength and power of the forgiver (Heider, 1958, p. 269), which additionally aggravates the effect of forgiveness. By analogy, we should observe such a situation by inducing guilt in the participant and allowing them for taking reparation actions (filling out a request for help, i.e., conditional forgiveness), and also by comparing the level of liking of the experimenter in different experimental conditions. According to Kemper

(2005), liking may reflect the strength in which the other person has granted us the right status and has not abused their authority. Additionally, a person who experiences guilt may also want to move away from the experimenter, whom they perceive as the source of negative emotions (Tangney, 1995). Therefore, the person towards whom we feel guilty, and who gave us some form of indirect forgiveness (conditional forgiveness) should be less liked by the respondents. Gruszecka and Piotrowski (2010) obtained such a result in their study.

To sum up, the research quoted above has contributed significantly to the studies on guilt, forgiveness, liking, and several other variables. However, in these studies, no psychometric measurement of guilt was made. The only researchers who made a psychometric manipulation check were Kelln and Ellard (1999). Still, their analysis has a significant disadvantage; this result was not compared with other emotions. In other words, we do not know whether the respondents, apart from feeling guilty, experienced other emotions such as sadness, fear or anger, and, consequently, whether this had any impact on the results obtained. We would like to present a method of an experimental guilt induction to address the problems mentioned above and to prove Franz Kafka wrong. We sincerely hope that this study will contribute to a better understanding of this emotion and will have an impact on the field of social influence.

Hypothesis development

As shown in the literature review, no experimental research on guilt has been carried out recently. Additionally, methods used so far may have low ecological relevance. In the present paper, we test an alternative way of experimenting with this emotion. If confirmed, this method could be accepted as a proper procedure evoking this specific emotion.

Hypothesis:

H1: Manipulation of guilt will significantly increase the level of perceived guilt as compared to the control group, and conditional forgiveness group.

H2: Individuals in experimental groups will significantly less like the experimenter than those in the control group and conditional forgiveness group.

Experiment 1

Method

Procedure.

The procedure is based on the idea proposed by Gruszecka and Piotrowski (2010) with a few alterations. The context of our study was to test the relationship between emotions and socio-political views using a new, unstable version of scientific research software. We asked the participants to carefully follow the on-screen instructions, because omitting a question may generate a critical error. Under experimental conditions, the error appeared automatically after the 49th question from 75. Then the following message appeared on the computer screen: *No answer. Failed to save the results of the previous survey. Incomplete or damaged files. The number of damaged files: 19*. In short, no specific action on the part of the participants led to the appearance of an error. Thus, the participants could doubt any guilt on their part. In contrast to Gruszecka and Piotrowski (2010), our procedure did not assume the need for the participant to perform any activity. In the study we followed, the procedure assumed that the participant had to click one of the options while the experimenter was absent. In our study, the message about damage files was displayed automatically, without any activity performed by the participants. After this message, the respondents were leaving the lab and informed the experimenter about the error. Depending on the experimental condition, the next part of the experiment looked different.

In the experimental group, the experimenter reported that he did not know what to do and that he had to consult the IT department. Then he returned after 5 minutes and informed the participants that all data was irretrievably lost and that he had to start the experiment all over again. Moreover, he said that the error was most likely caused by the gaps left by the participants during the survey. In the control group, the experimenter assured that the computer-generated message was a frequent system error.

Participants.

The participants were students at local university (N = 44, w = 31; M_{age} = 27.05, SD = 6.16). They were randomly selected for this study, and they received course credit for their participation.

Variables.

Independent variable. Independent variable was a presence of the content of the massage in two experimental groups, i.e., 1. *guilt condition* (N = 22), in which participants received a message showing that experimenters irrevocably lost their data; 2. *control condition* (N = 22) in which it was reported that the message is a frequent system error.

Dependent variables. The result on the scale of guilt in the emotions questionnaire (Wojciszke & Baryła, 2005). This scale consists of four categories (shame, humiliation, regret, and guilt). The participants' task was to indicate on a 7-point scale, from 1 — strongly disagree to 7 — strongly agree, how strongly they currently feel their emotions. Nothing had to be reverse coded. The result is the average score of these four components. Cronbach's alpha of this scale for a group of students is α = .75 (Wojciszke & Baryła, 2005).

Results

The statistical software IBM SPSS Statistics 25 was used to run the analysis with a combination of the R programming language implemented in RStudio v. 3.5.3. No participant had missing data. Distributions had not met normality criterion; because of that, it had been decided to conduct non-parametric analysis. Descriptive statistics are presented in table 1. (next page)

U Mann-Whitney test was used to check the efficiency of manipulation (post-hoc test power: 1 - β = 0.94). There was a significant difference Z = 2.09, p = .037, r = .32 between groups in feeling guilt. Participants in the experimental group (Mr = 26.33, Me = 2.00) felt more guilty than participants in the control group (Mr = 18.31, Me = 1.25). In addition, we also calculate the correlations

Table 1. Descriptive statistics (experiment 1)

Variables	*M*	*Me*	*SD*	*Sk.*	*Kurt.*	*Min.*	*Max.*
Humiliation	2.00	1.00	1.74	1.89	2.78	1.00	7.00
Regret	2.14	2.00	1.46	1.36	1.56	1.00	7.00
Shame	2.16	2.00	1.54	1.60	2.13	1.00	7.00
Guilt	2.45	2.00	1.80	1.31	.88	1.00	7.00
Guilt (calculated)	2.19	1.50	1.40	1.38	1.20	1.00	6.25

Table 2. Spearman's rho correlation matrix between items used to measure guilt (experiment 1)

Variables		Humiliation	Regret	Shame	Guilt	Guilt (calculated)
Humiliation	Spearman's *rho*	---	.51	.64	.66	.78
	p-value	---	<.001	<.001	<.001	<.001
Regret	Spearman's *rho*		---	.53	.45	.73
	p-value		---	<.001	.002	<.001
Shame	Spearman's *rho*			---	.84	.87
	p-value			---	<.001	<.001
Guilt	Spearman's *rho*				---	.89
	p-value				---	<.001

between individual factors of guilt, as well as the calculated indicator. All correlations turned out to be mostly strong (.5< *rho* <.7) and positive (see table 2). Obtained results indicate that guilt manipulation worked.

Experiment 2

Method

Procedure.

Our first study delivered satisfactory results. The respondents who were informed about the loss of data felt more guilty. In the main experiment, we decided to replicate the obtained effect. This time we added another experimental condition – conditional forgiveness. Thanks to this, we were able to check the impact of conditional forgiveness on the obtained effect in our first study. For this purpose, we asked the participants for a small favour in the form of preparing the lab for another experiment to follow. The favour consisted of moving the table and chairs (at which the examined persons sat) to the other corner of the room.

This time we added additional dependent variables. Apart from the guilt scale, it was crucial whether or not we evoked some other emotions other than guilt. For this purpose, we used the remaining scales from emotions questionnaire (Wojciszke & Baryła, 2005). This tool also contained such scales as joy, love, anger, fear, or sadness. Besides, we wanted to check how the lack of forgiveness would affect the liking of the experimenter by the participants and at the same time, to replicate the result obtained by Gruszecka and Piotrowski (2010).

Participants.

The participants were students at local university (N = 89, w = 64, M_{age} = 29.14, SD = 9.79). They were randomly selected for this study, and they received course credit for their participation. One participant was removed from the analysis because, at the end of the experiment, he informed us that he did not believe in the manipulation.

Variables.

Independent variable. As in the previous study, independent variable was a presence of the content of the massage in three experimental groups, i.e., 1. feeling guilty; *no forgiveness* (N = 30), in which participants received a message showing that experimenters irrevocably lost their data; 2. *conditional forgiveness* (N = 29), in which the above message was also presented. Additionally, the respondents were asked to fulfil their favour with the experimenter; 3. a lack of guilt; *control group* (N = 30) in which it was reported that the message was a frequent system error.

Dependent variables. We used the result on the scale of guilt as well as the result of joy, love, anger, fear and sadness scale in the emotions questionnaire by Wojciszke & Baryła (2005) described above, and also the result on liking scale. For this purpose, we employed the liking questionnaire (Bocian, Baryla, Kulesza, Schnall & Wojciszke, 2018). It was based on 7 statements (Cronbach's alpha = .93): (1) *I like this person*. (2) *I would like to meet this person in the future.* (3) *I think we have made good contact with this person quickly.* (4) *I feel a lot of sympathy*

for this person. (5) *I feel that this person would understand my feelings well.* (6) *This person makes me feel warm*. (7) *I think this person is nice.* Each answer was anchored from 1 (definitely disagree) to 7 (definitely agree).

Results

The statistical software IBM SPSS Statistics 25 was used to run the analysis with a combination of the R programming language implemented in RStudio v. 3.5.3, which was used to create plots and to bootstrap confidence (compatibility) intervals for effect sizes. No participant had missing data. The normality of the distribution of the analysed parameters was assessed using the skewness, kurtosis, and the Shapiro-Wilk test. Distributions of most variables had not met normality criterion, because of that, it was decided to conduct only non-parametric analysis (descriptive statistics and normality tests were calculated for each group separately).

In the first step, Kruskall-Wallis H test was run to investigate the differences between control, no-forgiveness, and conditional forgiveness groups for a series of dependent variables: guilt, liking, sadness, anger, joy and love. Statistically significant results were observed only for guilt $H = 12.65$, $p = .002$, $\epsilon^2 = .14$ (see figure 1) and liking variables $H = 6.31$, $p = .043$, $\epsilon^2 = .07$ (see figure 2).

Post-hoc pairwise Dunn's tests with Bonferroni correction showed that the no-forgiveness group had significantly higher felt guilt than the control and conditional forgiveness groups. However, there was no significant difference between the control and conditional forgiveness groups. In terms of liking variable, the post-hoc analysis revealed that the control group scored significantly higher than the no-forgiveness group; other differences were not statistically significant (see table 3). Obtained results indicate that guilt manipulation worked and hypothesis one and two had been confirmed.

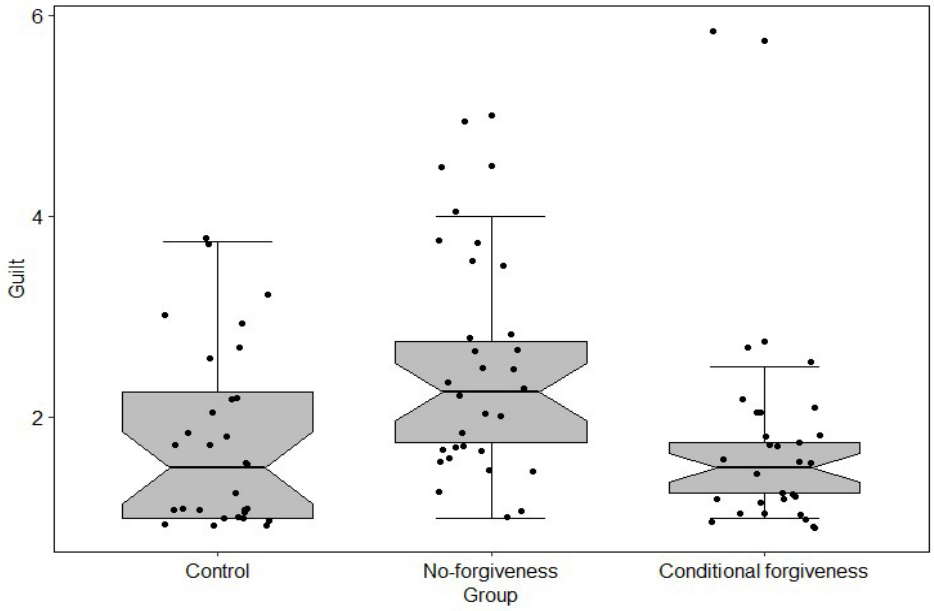

Figure 1.

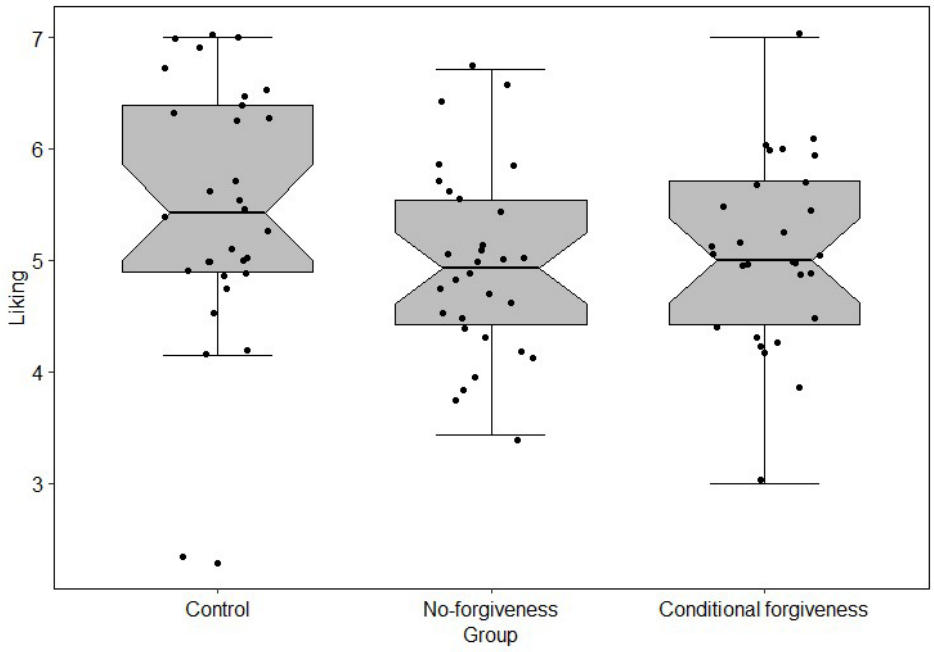

Figure 2.

Table 3. Kruskall-Wallis test (experiment 2)

	Group									
	Control		No-forgiveness		Conditional forgiveness					
Variables	*Me*	M_r	*Me*	M_r	*Me*	*Mr*	*H*	*p*	ϵ^2	ϵ^2CI
Guilt	1.50	38,82[a]	2.25	58.48[a,b]	1.50	37.45[b]	12.65	.002	.14	[.04; .32]
Liking	5.43	54.15[a]	4.93	37.78[a]	5.00	43.00	6.31	.043	.07	[.01; .23]
Joy	5.25	48.68	4.88	39.40	5.00	46.98	2.21	.332	.03	[.002; .16]
Love	4.75	48.93	4.50	40.18	4.50	45.91	1.78	.410	.02	[.002; .13]
Anger	2.75	45.62	3.38	51.72	2.25	37.41	4.58	.102	.05	[.004; .20]
Fear	2.75	42.80	3.25	53.50	2.25	38.48	5.33	.070	.06	[.008; .21]
Sadness	1.63	41.97	2.25	53.88	1.50	38.95	5.65	.059	.06	[.007; .21]

Note: a,b – *post-hoc* significant differences with *Bonferroni* correction

Discussion

The study presented above turns out to be an effective method for inducing guilt. Our manipulation significantly increased the level of guilt in the experimental group in comparison with the control group and conditional forgiveness group. It was also confirmed that complying with the request of the victim makes us feel less guilty, which is also established in research (e.g., Konoske et al., 1979). However, it does not mean that we like this person (experimenter). It seems that we like less the people we hurt (Wojciszke, 2006, p. 256), which may be related to the abuse of power by the experimenter (Tangney, 1995; Kamper, 2005).

A watchful reader may notice that in experiment 1 and experiment 2, the values on the guilt scale are shallow. At this point, we should consider whether we can safely assume that the respondents actually felt guilty. First of all, the fact that in the previous study by Kelln and Ellard (1999) where the level of guilt was also measured, the high level of guilt was not reported (Kelln & Ellard, 1999); however, a statistically significant difference in guilt was also present. Given the above, the question arises: can we can induce a higher measurable sense of guilt in laboratory conditions? We think that since our results and Kelln & Ellard's (1999) results are similar, guilt may be such a fragile emotion that it may be impossible to adequately measure its value in artificial conditions. We strongly believe that future research is necessary.

Secondly, we think that low values on the guilt scale are a hedge advantage, not a disadvantage. From an empirical point of view, it is important that statistical significance on the guilt scale is still observable. Moreover, guilt is an aversive emotion (Baumeister, Stillwell & Heatherton, 1995) and our study proved that the statistical difference in guilt can be observed without exposing participants to extremely unpleasant experiences. This allows us to explore this emotion while ensuring the well-being of participants effectively.

The results obtained in experimental groups can be interpreted in another way. The sense of distancing from the experimenter observed in the study may be the result of feeling shame, which makes people distance themselves and increases isolation in social situations (Łosiak, 2007). The emotions of shame and guilt by most researchers are treated inseparably (see Lewis, 1992). Empirical studies have failed so far to confirm the explicit empirical criterion of their distinction (Tangney, 1999).

Undoubtedly, this study is not free from methodological flaws. First, we measured the emotional states other than guilt (like sadness or anger), and we also included them in our analyses. This method would not fulfil its purpose if it caused other emotions. We observed significant differences in liking and guilt. However, sadness is very close to statistical significance. Notwithstanding, when bad things happen, many different types of negative emotions are possible. Additionally, studies indicate that people feeling guilty are more empathic (Tangney, 1999). It is possible that our manipulation causing guilt awakened empathy towards the experimenter, which made the respondents feel sad when seeing the sense of loss and suffering of the researcher. In future research, it is advisable to measure empathy and use other tools to measure guilt and shame, for example: MAACL-R (Zuckerman & Lubin, 1985; Kelln & Ellard, 1999), IGQ LE (O`Connor, Berry, Weiss, Bush & Sampson, 1997), TOSCA-3 (Tangney, Dearing, Wagner & Gramzow, 2000), SUM-5 (Strus, 2010).

Moreover, Lewis (1992), argues that to arouse sense of guilt, it is necessary to take personal responsibility for the action and its consequences. In a situation where no specific activity did not lead to data loss, perhaps the crucial meaning for our results was that the participants after receiving the information about data lost take all responsibility on themselves. It is worth noting that Lewis (1992) points out that when we blame the space around (in this research it could be faulty computer equipment), we mainly feel the emotion of anger, no sense of guilt. In our study, we did not observe that anger differentiated the participants in experimental groups at all.

Secondly, a fascinating question arises – how long does this effect last? Will this effect be observable if we cross the window of excitation-transfer (Zillmann, 1983; 2003) and the experimenter will return after 10 minutes instead of 5 minutes? Is the result of conditional forgiveness not burdened over time? Future experiments might address these critical issues.

It should be emphasised that recent studies have shown that debriefing is not an effective method, and experimental manipulations leave its mark on the participants (Miketta & Friese, 2019). It turns out that in the case of experimental induction of guilt which is an aversive experience (Baumeister et al., 1995), requests for small favours make the participants eliminate the emotion of guilt, and thus, asking for small favour can be an effective method of debriefing from guilt. However, it does not restore sympathy for the experimenter. Maybe another type of request, for example, the request of a more personal nature, could be more effective. Undoubtedly, further research is necessary.

Conclusion

This paper fills a significant research gap. It has shown that experimental induction of guilt is effective even when the sense of guilt can be doubted and does not necessarily result directly from the actions of the participant. This study makes the experimental research on guilt faster and easier to arrange. The experimental data obtained in this research have confirmed the effectiveness of our method. On the one hand, the procedure can be an effective way of studying forgiveness and its interpersonal consequences. On the other hand, it can be used to induce the feeling of guilt in the participants and to reduce their sympathy towards the experimenter.

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