

Social Support during trauma therapy, an experimental study

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Abstract

Posttraumatic stress disorder is one of the most prevalent disorders for which psychological treatment is used worldwide. Even though numerous patients are helped with the existing treatment methods, a noteworthy part of the patient population does not seem to benefit from those treatment methods. Some evidence exists for the beneficial effect of social support during medical treatment. However, no research has been conducted concerning the results of social support during trauma treatment. With this experimental study, we aimed to study the role of social support while looking at shocking pictures. We used an experimental condition (social support) and a control condition (no social support). We assessed the experienced unpleasantness while looking at the picture. This was done immediately before and immediately after the intervention. We also assessed the experienced unpleasantness and vividness after *recollection* of the picture. This assessment was only made *after* the intervention. In both the social support condition and the control condition drops in unpleasantness occurred while looking at the picture. However, there was not a significant difference between the conditions. With regards to the memory of the picture, we found that participants in the social support group scored significant lower on unpleasantness after the *recollection*. No significant effect was found for experienced vividness after *recollection*. Lastly, possible explanations and suggestions for future research are given.

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Introduction

Posttraumatic stress disorder (PTSD) is one of the most prevalent axis 1 disorders for which psychotherapy is practiced worldwide (Bradley, Greene, Russ, Dutra & Westen, 2005). Most individuals go through at least one traumatic event during their life and most can move on from it without receiving any psychological help. However, for a significant part of the individuals exposed to a trauma, the beginning of a period of suffering and lots of distress, which may lead to PTSD later on, starts. According to the Diagnostic and Statistical Manual of Mental Disorders 5 and M-5 (American Psychiatric Association, 2013), PTSD occurs when a person has been exposed to actual or threatened death, serious injury or sexual violation. During the exposure, the individual directly experienced a traumatic event or witnessed a traumatic event. It's also possible that the individual learns that a traumatic event occurred to a close family member or friend, or that the individual experienced first-hand repeated or extreme exposure to aversive details of the traumatic event. Consequently, the traumatic event causes clinically significant harm or distress in the individual's social relationships, capability to work or other important areas of functioning. In the DSM-5, behavioural symptoms of PTSD fall under four different clusters. The first concerns re-experiencing unprompted memories of the traumatic event, returning dreams about the traumatic event or other extended and intense psychological distress reactions. The second cluster, avoidance, refers to distressing thoughts, memories, feelings or reminders of the traumatic event. The third regards negative emotions and mood. This cluster represents countless feelings in which someone can get a persistent and distorted sense of blame of self or others. Furthermore, individuals can get estranged from others and show less interest in activities. It's also possible they forget key aspects of the traumatic event. The last cluster concerns arousal and is characterized by reckless, aggressive or self-harming behaviour, problems with sleeping or hyper-vigilance. PTSD symptoms can last for years or even decades after the traumatic event (Breslau, 2001). Furthermore, trauma is pervasive and it can occur at almost any point in a human's life. The way individuals respond to traumatic events can vary and it can be very complex (Briere & Scott, 2014). According to Hall, Hoerster & Yancy (2015), PTSD affects approximately 8% of civilian populations.

Different therapies based on different theoretical perspectives have been found to be effective for treating PTSD. According to a systematic review by Seidler and Wagner (2006) both Eye Movement Desensitization and reprocessing (EMDR) and trauma-focused cognitive-behavioral therapy (TF-CBT) are effective treatment methods. Furthermore, Bisson, Ehlers, Matthews, Pilling, Richards & Turner (2007) used 38 randomized controlled trials in a meta-analysis to determine the efficacy of several treatments methods for PTSD. They concluded that Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), stress management, group cognitive behavioral therapy and EMDR improved PTSD symptoms more than waiting list participants or usual care. Lastly, results of a meta-analysis by Bradley, Greene, Russ, Dutra & Westen (2005) show that various forms of CBT and EMDR produced substantial improvements for patients with PTSD. 67% of the patients who completed treatment did not meet PTSD criteria anymore and 56% who entered treatment (whether they completed or not) didn't have symptoms anymore as well.

Even though there are multiple forms of therapy that seem effective in treating PTSD, there is still a part of the patients who don't seem to benefit from those treatments. According to Bradley, Greene, Russ, Dutra & Westen (2005) 67% benefited which means that 33% still did not benefit from treatment. It must be mentioned that there are a few nuances that may have influenced the outcomes of this meta-analysis. For example, the percentage of patients who lost the PTSD diagnoses was higher than demonstrated investigator-defined improvement. Patients did not meet the necessary criteria for the PTSD diagnoses anymore but still suffered from complaints and remained highly symptomatic.

It's possible that the lack of positive treatment results is related to poor tolerance for arousal (van der Kolk, 1987). Everyone has a so called 'optimal arousal zone'. When arousal stays within this zone, a person is capable of effectively processing information concerning thoughts, affects and sensations. Traumatized individuals however, are vulnerable for autonomic dysregulation, which may lead to hyperarousal (excessive alertness and sensitivity, intrusive imagery) or hypoarousal (passivity, immobilization, emotional numbing and deadness). Because of those vacillations in arousal, affective and cognitive reasoning may be disrupted since a person becomes overwhelmed and disorganized by the velocity and quantity of emotions and thoughts (Ogden, 2000). When this happens, an individual is not capable of staying within the so-called 'window of tolerance' (Corrigan, Fisher, &

Nutt, 2011). When a traumatized individual learns how to regulate her or his arousal in a more effective way, and thus, stays within the window of tolerance, symptoms might decline because this makes that they can now engage in trauma treatment in a more effective way. The window of tolerance can be enlarged when there is some sort of social support from a significant other. People are less anxious and tense when they know that significant others are present for support. Social support is related to the concept of attachment. According to Bowlby (1982a), people learn from early on to trust on attachment figures since they provide safety, food, and ultimately, survival. Schore (1994) describes attachment as a form of reciprocal emotional regulation between two people both verbally as non-verbally. In adulthood, social support figures and intimate partners still influence emotional regulation because of attachment. Bowlby (1973) states that internal working models of the self and others mediate attachment and those working models develop through interaction with attachment figures. Multiple studies have linked attachment style to PTSD. Dekel, Solomon, Ginzburg & Neria (2004) argue that secure attachment compensates for harmful psychological effects in case of traumatic situations such as rocket attacks, extreme life-endangering situations, and imprisonment. A study by Dieperink, Leskela, Thuras and Engdahl (2001) found in a sample of previous prisoners of war that 65% of them had an insecure attachment style. They also found that having a secure attachment style was related to lower reported PTSD symptoms. Secure attachment could have a protective function since a positive view of the self and others could lead to better use of support. Because of this, individuals would be better in tolerating stressful and traumatic events and the chance of developing PTSD would be smaller.

Even though it is clear that secure attachment plays a mediating role in handling stressful and traumatic situations and that insecure attachment is associated with stressful experiences, it is unclear whether it's also helpful to bring a significant other for support during trauma-focused therapy. Currently, it is not custom that a patient brings another person during therapy and no proper research has been done but it could be helpful and it could facilitate trauma-focused therapy. Even without much empirical evidence, clinicians do sometimes use social support during the treatment of clients with trauma-related problems by inviting significant others to the treatment sessions. This applies especially for the treatment of children. For example, Pockock (2011) describes how he asks children to sit on their parent's lap during EMDR

treatment so they will feel more comfortable during the sessions. Also, Cohen & Mannarino (2008) state in their research concerning Trauma Focused Cognitive Behavioral Therapy for Children and Parents (TF-CBT), that this treatment is most effective for children when a parent is present.

More research is available regarding social support under other circumstances, for example during medical interventions or when stress is induced in the laboratory. DiMatteo (2004) meta-analyzed 122 articles concerning social support and adherence of patients. This meta-analysis involved a broad base of subjects, various disease conditions, different age groups, several treatment options and several measurement strategies. It was suggested that support and assistance from family and friends promotes adherence of the patient. This meta-analysis showed that social support is an important factor when it comes to compliance and treatment outcomes, however, it doesn't precisely tell what the role of social support is during the medical intervention itself.

A study that does provide more information about the abovementioned is a study by Moon & Cho (2001). They assessed the effects of handholding on anxiety of patients who underwent planned cataract surgery under local anaesthesia. Half of the participants were randomly assigned to the handhold group and the other half was placed in the control group. Results showed that handholding indeed reduced anxiety during the operation since the number of subjects who reported decreased anxiety during the operation was significantly higher in the handholding group compared with the control group. Some 10 years before the study by Moon & Cho (2001), Edens, Larkin & Abel (1992) conducted research concerning social support and physical touch. Their research focused on cardiovascular reactions to mental stress. Participants in their research were alone or in presence of a friend and they had to complete two mental tasks. Before they started, the experimenters told them that accuracy and time were evaluated and that they had to work as quickly as possible. This study didn't find a significant effect on physical touch and no support was found with relation to attenuated cardiovascular responding to stress. However, results did show that the presence of a friend attenuated cardiovascular reactions to stress. The presence of a friend may be the important mediating variable in reducing stress.

Several studies are available in which stress or pain was induced in laboratories to investigate the role of social support. In a study by Coan, Schaefer & Davidson (2006) 16 married women were told they would get an electric shock while

holding the hand of their husband, the hand of an anonymous male experimenter or no hand. Results showed that activation in the neural systems supporting behavioural and emotional threat responses such as the ventral anterior cingulate cortex, right dorsolateral prefrontal cortex, left superior frontal gyrus, putamen, right anterior insula, caudate-nucleus accumbens, hypothalamus, right postcentral gyrus, posterior cingulate and superior colliculus, weakened when a woman held the hand of her husband. This weakening of activation was less when the women held the hand of a stranger. Even more striking was the fact that the effects of holding hands varied according to quality of the marriage. When the marital quality was better, threat-related neural activation in the abovementioned brain areas several brain areas was lower than when the quality of marriage was less good. In another study by Brown, Sheffield, Leary and Robinson (2003) 101 participants performed the cold pressor task which means they had to place a hand in water with a temperature at 1 to 2 degrees Celsius; this is a painful experience. During the experiment, participants were alone or in company of a friend or stranger. They gave active support, passive support or interaction. Next pain perception of the participants was measured on a 10-point scale. This study showed that participants in the active and passive support conditions experienced less pain than participants in the alone and interaction condition, it didn't matter if the participants were with a stranger or a friend during the experiment. With this study, it can be concluded that passive or active support reduces experimental pain.

It looks like social contact causes enhanced well-being and health (Coan, Schaefer & Davidson, 2006) but there is still no research available on the effect of social contact during trauma related therapy. Also, there is no research available on the effect of social support on vividness and unpleasantness during *recollection*. Research by Hyman & Pentland (1996) showed that individuals who were involved in concentrated mental imagery, experienced increased vividness during future recollections.

In a first attempt to test whether such effects occur, we tested if social support reduces the feeling of unpleasantness while looking at a shocking picture. Furthermore, it was investigated if social support effects the experienced vividness and the feeling of unpleasantness during *recollection* of the shocking picture. Participants in the experimental condition received social support while looking at shocking pictures and during recollection, the participants in the control condition

didn't receive social support. All participants answered a few times how unpleasant it felt to look at the pictures and they answered once how unpleasant and vivid it felt during recollect

Important to mention is that with this study, we did not directly research the effect of social support on trauma therapy. It was a controlled experimental study.

By using pretest-posttest measures we sought to test our first hypothesis about the unpleasantness of looking at the picture. For the second and third hypotheses, relating to the memory of the picture, we only assessed unpleasantness after the recollection. First, compared to the control condition, a larger pre-to posttest reduction in unpleasantness while looking at the shocking picture was predicted in in the experimental condition. Second, it was predicted that compared to the control condition, the unpleasantness score of the recollection would be lower for the experimental condition. Third, it was predicted that, compared to the control condition, the vividness score of the recollection would be lower for the experimental condition.

Methods

Participants

Participants were both male and female, older than 18 years old and were randomly allocated to an experimental condition and a control condition. They were all students or alumni's. Every participant brought a support figure who they chose themselves. The support figures had to meet a few requirements. First, the support figure had to be a family member, a friend or a classmate. The second criteria was that the support was above 18 years old. No subjects had to be excluded which resulted in 40 participants, mean age 21.88 (SD=2.68). Fifteen participants were men, mean age 21,80 (SD=2.98), 25 participants were female, mean age 21.92 (SD=2.55). All participants were recruited through postings at the university of Utrecht and by promoting the study on campus. The experimental group included 20 individuals (mean age 22.45, SD=2.72) and the control group also included 20 individuals (mean age 21.30, SD=2.58). Support figures of participants in the control condition did not participate during the experiment. However, they did receive money for participation or the required participant hours they need to collect for their education.

Measures and materials

Questionnaire relationship. Within the experimental condition, we used a questionnaire concerning the relationship participants had with the support figure they brought for this study. The questionnaire contained questions about the quality, value and length of the relationship. A 5-point response scale was adopted for all items. The 'quality scale' ranged from 1 (bad) to 5 (very good). The value scale ranged from 1 (no value) to 5 (very valuable). Lastly, the length scale ranged from 1 (0-2 months) to 5 (more than two years). The nature of the relationship was measured by a 4-point nominal scale. Participants choose between sibling, friend, classmate or 'otherwise'. Participants in the control condition did not answer the questionnaires about the quality of the relationship since they did not receive social support.

Questionnaire demographic information. Questionnaire concerned their gender, age, education, degree and nationality.

Subjective rating of a shocking picture: A picture of a child with terrible burn wounds, who looks frightened was used as trigger and to create feelings of unpleasantness and to create the shocking effect. The picture (number 3053) used is part of the International Affective Picture System (IAPS).

Subjective ratings of unpleasantness. Subjective ratings of unpleasantness of the picture were obtained by asking the participants to look at the picture and to indicate how unpleasant this was on a 100 mm *Visual Analogue Scales (VAS's)* running from “0” (*not unpleasant at all*) to “100” (*Extremely unpleasant*). The same VAS's were used to obtain subjective ratings of vividness and unpleasantness of the *recollection* of the shocking picture. Participants had ten second to think about the shocking picture they had seen before. After that, they answered how unpleasant and vivid the recollection was on 100 mm VAS's.

Questionnaire experienced support. Questionnaire used to measure how supported the participant felt by the support figure. Again, a VAS scale was used in which “0” meant not supported and “100” very supported.

Tetris. The game Tetris was used to distract participants from thinking about the picture. Participants played Tetris for five minutes after looking at the shocking picture (see procedure).

Procedure

All participants arrived in couples. For the experimental condition, the couples were escorted to a cubicle in the laboratory. First, only the participant went into the cubicle, the support figure stayed outside. The participant filled out a questionnaire with demographic information. After that, the experiment started. The shocking picture was shown for five seconds. After that, the participant answered how unpleasant the picture was to him/ her and filled out a Visual Analogue Scale (VAS). After filling out the first one, the pretest, the support figure came into the cubicle and took place diagonally opposite from the participant. The support figure was not allowed to see the shocking picture or the VAS's the participant had to fill out. The participant was asked to focus on the shocking picture. The support figure was supporting the participant only by being present, they were not allowed to talk. After the support figure came in the participant had to look at the picture for one more minute. After looking at the picture for a minute, the support figure left the cubicle again. For the support figures the experiment was finished now. The participant stayed inside the cubicle and he/ she looked at the picture for 15 more seconds. Subsequently, another VAS was filled out to answer how unpleasant it was to look at the image, this was the posttest. After this, the second part of the study started in which hypothesis two and

three were tested. Those hypotheses concerned the unpleasantness and vividness during *recollection* of the picture.

The participant played 'Tetris' for five minutes to distract the him/ her from thinking about the picture. The participant was then asked to think back about the picture for 10 seconds. Two more VAS's were filled out to answer how unpleasant the recollection was and how lively the recollection was. Lastly, the participants filled out a questionnaire about the relationship with the support figure and the extend of support they had experienced. The participant got a debriefing and was sent to the front desk to pick up the money for participating or the required participant hours they need to collect for their education.

In the control group, the participant followed the same procedure as the participants in the experimental group only they looked at the shocking picture without a support figure present. They filled out the same amount of VAS's during the experiment. They also filled out the questionnaire with demographic information. Obviously, they didn't fill out the questionnaire about the relationship with the support figure since there was not one. Lastly, they also played Tetris for five minutes and filled out two VAS's to answer how vivid and unpleasant the *recollection* of the picture was.

Design.

In this study, unpleasantness ratings were analysed with a 2 (Time, pretest vs. posttest x 2 (Condition, Social support vs. no social support) mixed ANOVA in which Condition served as between subjects factor and Time as within subjects factor. Crucially, there are two types of outcome measures. The first figures as repeated measure (pretest-posttest) and the second as a posttest only. The second measure concerns the *recollection* of the shocking picture. We measured the vividness and unpleasantness only after *recollection*

Results

Descriptives

Relationship and experienced support

Within the experimental condition, participants filled out a questionnaire about the quality and value of the relationship. They also answered how supported they felt during the experiment. Participants in the control condition didn't fill out this questionnaire since they did not receive social support.

Table 1

Quality and value of the relationship and experienced support. Mean, standard deviation.

	Mean	Std. Deviation
Quality Relationship	3.65	.59
Value relationship	3.05	.89
Experienced support	35,05	20.79

Unpleasantness at pretest and posttest while looking at the picture.

Scores were subjected to a 2x2 analysis of variance (ANOVA) with time (pretest vs. posttest) as within-group factor and partner (with vs. without partner) as between-group factor. It was predicted that, compared to the control condition, there would be a larger pre-to post reduction in scores in the experimental condition.

In both the social support condition and the control condition drops in unpleasantness occurred (see Figure 1). There was a significant main effect for Time, $F(1,38)= 16.33$, $p <.05= .00$, $\eta^2= 0.30$. However, no significant interaction effect was found between time and social support, $F(1,38) = 1.97$, $p= 0.17$, $\eta^2=0.05$. Also, there was no significant main effect for social support, $F(1,38)= 0.10$, $p= 0.75$, $\eta^2=0.03$.

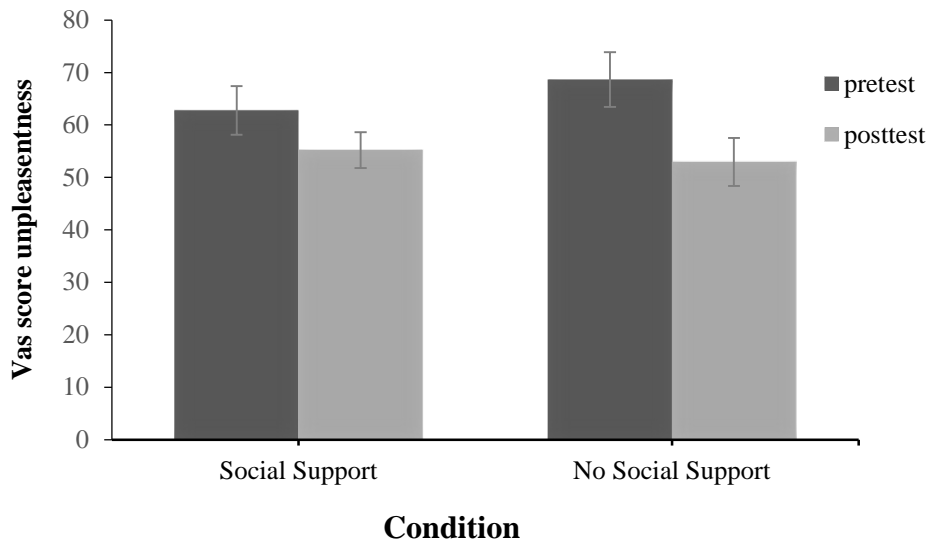


Figure 1. Pretest and posttest scores of subjective unpleasantness (VAS) while watching the shocking picture with or without a social support figure.

Unpleasantness of recollection of the picture.

To determine if the decrease in unpleasantness during recollection was larger in the experimental condition compared to the control condition, an independent samples t-test was conducted. It was predicted that the scores on the VAS scale for unpleasantness after recollection would be lower in the experimental group compared to the control condition since a support figure was present during the recollection for the experimental condition.

There was a difference in the extent to which participants found the recollection unpleasant. Participants in the experimental condition scored significantly [$t(38)=-1.973, p= 0.041$] lower on unpleasantness during the recollection ($M=38.35, SD=20.98$) compared to the participants in the control condition ($M=50.20, SD=20.81$).

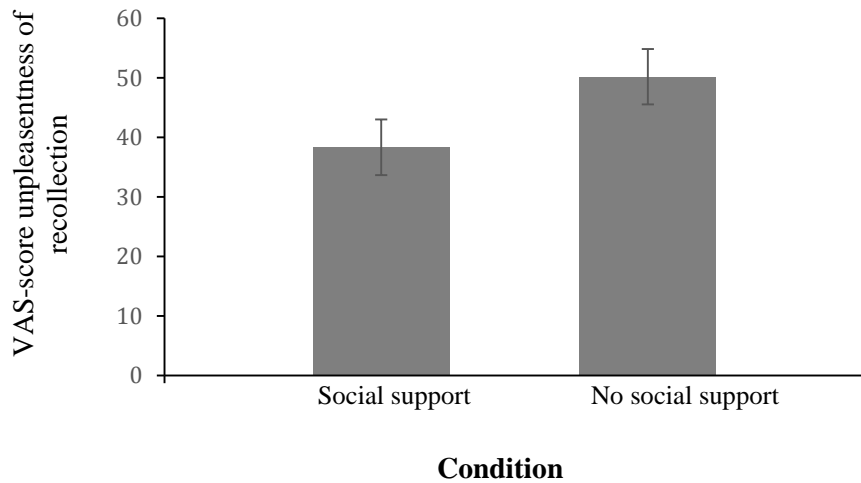


Figure 2. VAS scores for the experimental and control condition of subjective unpleasantness of recollection

Vividness of recollection of the picture

To determine if the decrease in vividness during recollection was larger in the experimental condition compared to the control condition, an independent samples t-test was conducted. Scores of participants in the experimental condition ($M=53.25$, $SD=24.26$) were lower compared to the scores of the participants in the control condition ($M=49.35$, $SD=19.90$). However, there was no significant difference between the two conditions $t(38)=.556$, $p=0,29$

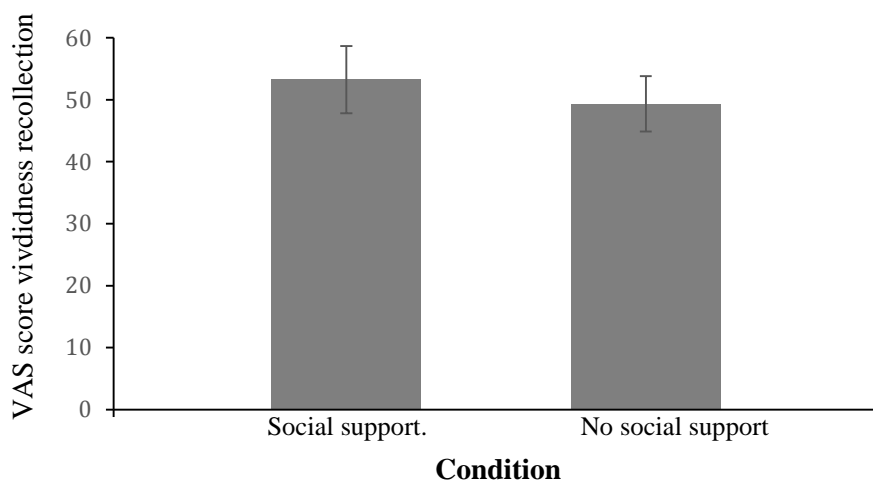


Figure 3. VAS scores for the experimental and control condition on vividness of recollection.

Discussion

As recalled in the introduction, earlier research already showed that social contact causes enhanced well-being and health (Coan, Schaefer, Davidson, 2006). Furthermore, there is some research available regarding social support during medical interventions or when stress was induced in a laboratory. However, there was no research done concerning the effect of social contact during trauma related therapy. The aim of this study was to carry out a first, non-clinical, study on the possible effects of social support while looking at shocking pictures with or without social support present.

With this study, a few hypotheses were tested. First, it was predicted that compared to the control condition, there would be a larger pre-to post reduction in scores in the experimental condition since they received social support while looking at the picture. An interaction effect between time and group was expected. However, in both the social support condition and the control condition drops in unpleasantness occurred. There was not a significant difference between the conditions.

The second and third hypotheses concerned the feeling of unpleasantness and vividness after *recollection* of the shocking picture. It was predicted that compared to the control condition, the unpleasantness and vividness scores after recollection would be lower for the experimental condition. Results showed that for experienced unpleasantness during recollection this was indeed the case. The participants in the experimental condition scored significantly lower on unpleasantness during recollection. For vividness however, no significant effect was found which means that social support did not facilitate lower scores in experienced vividness.

A possible explanation for the observation that social support did not produce larger drops in experienced unpleasantness while looking at the shocking picture could be psychological desensitization to violence. In our study, a picture of a child with terrible burn wounds who looks frightened was used as a trigger and to create the shocking effect. However, nowadays people are exposed to a lot of shocking material because of movies, documentaries, videogames etcetera. According to research by Carnagey, Anderson & Bushman (2007) playing violent games makes a person less psychological aroused while watching violence.

Another explanation might be the *form* in which social support was given. In this research participants didn't experience much support. The average score was

35.05 on a scale of 0 to 100. Support figures gave support in a passive way, they were present but they did not do anything and they did not speak. For future research, social support figures could get a more active role in which for example they could reassure the participant while looking at the picture. Another option could be that the support figures and the participant look at the picture together.

With regards to recollection ratings after the intervention, we expected both unpleasantness and vividness to be lower in the experimental condition compared to the control condition. We found a significant effect on unpleasantness but not on vividness. The effect on unpleasantness was in line with the prediction and suggests that, just like in the cases of medical interventions (Brown, Sheffield, Leary and Robinson, 2003; Coan, Schaefer & Davidson, 2006; Moon & Cho, 2011), social support has beneficial effects. The results of our study suggest that social support during aversive experiences, (in our study looking at shocking pictures) reduces the aversiveness of later recollections of the aversive material. It is unclear why this positive effect was not found for vividness. There does not seem to be an obvious explanation for the discrepancy. Speculations about a possible explanation may be better postponed until the findings of this study are replicated.

Several limitations of the current study should be noted. This study was a controlled experimental study which was conducted in the form of a randomized controlled trial (RCT). Participants were randomly assigned to the experimental or control condition. The study was performed in a laboratory which means that the results are just a first indication for what might be effective during real clinical trauma treatment. However, to test if treatment and more specifically, the use of a social support figure, will be effective within a real patient population, experiments are needed first (Jansen, van den Hout, & Merckelbach, 2010). Also, in this study, participants answered a questionnaire about the nature of the relationship they had with their support figure. By analysing the data of this questionnaire, we noticed that no one brought a family member. However, according to research by Uchino, Cacioppo and Kiecolt-Glaser (1996) familial support is an important form of social support. The fact we did not have participants included who brought a family member might have influenced the results of this study.

For future research an option could be to replicate this study in a clinical setting. Within a real patient population, no shocking picture is needed to make them feel unpleasant since they already developed a trauma. For future research the next

step could be to use social support figures during real trauma therapy instead of experimental research in a laboratory. Second, in this study, only the experimental condition answered a questionnaire about the relationship they had with their support figure. For future research, a possibility would be to also use the questionnaire for the control group. By doing so, comparisons could be made between the two conditions.

It can be concluded that, during future research, a few important notes should be considered. First, the stimulus used during the experiment that must cause the shocking effect should not give rise to psychological desensitization. A possible solution should be to use multiple pictures instead of just one. Another option could be to give the support figure a more active role while supporting the participant. Also, including family members as social support figures might be helpful. A last option would be to test our hypotheses by using clinical samples.

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