Time Pressure and Attribution Effects in Stress Ratings

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The present study aimed to examine the effects of time pressure and attributions on a simple task. It was hypothesized that under time pressure, participants would report lower stress levels when given a stress relief object. A total of 40 participants took part in this study. Participants were assigned to one of four conditions and told to complete a word search. Participants were either told or not told about a two minute limit and provided or not provided a stress ball during the task. Stress balls were used to determine whether participants experiencing pressure from a time limit would attribute stress relief to the object. After the passage of two minutes, participants were asked to rate level of stress experienced during the task. The results obtained did not support the experimental hypothesis. Implications of these findings are discussed.

Placebo effects have been shown to have various impacts in a wide array of situations. Some researchers suggest that attribution of symptoms to a particular object or drug play an important role when studying these effects. There has been substantial amount of research in this area, but perhaps most well know reports concern medical conditions. A study by Storms and Nisbett (1970) examined the attribution process in 42 insomniacs. Participants in this study were given placebo pills and varying descriptions of their effects. It was found that participants that attributed high arousal symptoms to the pill were able to fall asleep sooner than those who did not. In contrast, participants who believed the pill had calming effects could not attribute arousal symptoms to the pill; instead, these participants attributed arousal to self and were less likely to fall
Time Pressure and Attribution Effects

Researchers argue that these false beliefs are the underlying mechanisms of the attribution process and may be further generalized into other areas.

Areas concerning attribution effects vary significantly and it is important to consider less medically contingent constructs. A study by Rodin and Zimbardo (1969) examined the effects of fear and cognitive-emotional misattribution. A total of 40 participants were asked to complete a puzzle that would earn them a reward or avoid a shock. Under misattribution conditions, participants were led to believe that pre-emptive fear symptoms of an upcoming shock were caused by a noise. In contrast, participants in the shock attribution conditions believed that the fear symptoms were due to the forthcoming shock. Results indicated that participants in the misattribution condition reported less fear than those in shock attribution. These results further support the results of the Storms and Nisbett study (1970) while suggesting that attribution effects may be present in different types of stimuli.

The symptoms experienced during a high arousal and fearful situation can vary quite often, however, the importance of this attribution concept may be further translated to different settings; such as arousal conditions that may be created by time pressure. Time pressure has been shown to affect a wide array of mental and behavioural processes. A study by Verplanken (1993) looked at the effects of time pressure and decision making. A total of 90 participants were asked to make a consumer based decision. Participants on the time pressure conditions were given 5 minutes to complete the task. In contrast, participants under no pressure were given 9 minutes; sufficient time to complete the task at a reasonable pace. Findings suggest that under time pressure,
Time Pressure and Attribution Effects

Participants tended to speed up decision making and often felt a lack of confidence with answers (Verplanken, 1993).

Time pressure seems to alter cognitive processes in several ways. Further literature seems to support the idea that stress may play an underlying role. A study by Zur and Breznitz (1981) examined the effects of time pressure on gambles of 36 participants. Each participant was tested under several timed conditions and over a total of 39 trials. Results suggested that participants made less risky choices during higher time pressure conditions and focused more on negative aspects of loss when compared to participants in low time pressure conditions. These results further amplify the data of cognitive differences under time pressure conditions.

Perhaps of more importance are the researchers’ suggested mechanisms for these differences. It is argued that time pressure may create a stressful condition because there is a lack confidence in processing all available information. Similarly, participants in the Verplanken (1993) study reported less confidence in answers and perhaps due to their inability to process all available information.

In relation to previously mentioned literature, time pressure may be subject to these attribution processes; creating a stressful condition and giving participants the opportunity to attribute stress relief to an object. The present study aims to examine the effects of time pressure and attributions on a simple puzzle task. It was hypothesized that under time pressure, participants should report lower stress ratings when given a stress relief object. Similarly, it is expected that participants unable to attribute stress relief should report higher stress level ratings.
Time Pressure and Attribution Effects

Method

Participants
There were a total of 40 participants obtained at various leisure locations at the University of Western Ontario. Leisure locations included cafeterias, lounges, and libraries. Participants were recruited at the researcher’s convenience and varied in terms of time, setting, and location. All participants were at least 18 years old and able to speak English. No additional demographical information about the sample is known.

Materials
A 7-point likert scale was used to assess participants’ stress level (Appendix A); at one end of the scale “Not stressed” (1) and “Very stress” (7) at the other. On all experimental conditions participants were asked to complete a word search (Appendix B). The word search included 20 different animals and was created by the researcher. There were 11 columns, 11 rows, and a total of 122 letters. Puzzle words could be found in any direction and could mix with one another.

With the use of a timer, a two minute time limit was given for task competition and was available to participants under two time pressure conditions. Additionally, a stress ball (Appendix C) was given to participants under two attribution object conditions. The ball was made of yellow foam rubber and measured 2.5 cm in diameter.

Procedure
Participants were recruited during different times of day, location and settings. However, all participants completed the study individually and with no help from others. Once recruited, all participants were given with a letter of information and consent form to read and sign. Using a random number generator, participants were then assigned to
Time Pressure and Attribution Effects

Four different experimental conditions: Time, ball; time, no ball; no time, ball; no time, no ball. Under the time pressure conditions, participants were given a 2-minute time limit and shown a timer that displayed the remaining time. Under no time pressure conditions, participants were told to complete the word search and were not informed with regards to available task time; participants under no time pressure conditions were simply stopped at the two minute mark. Participants were also given or not given a stress ball prior to initiating the task. If a stress ball was provided, participants were instructed to squeeze the ball every few seconds while completing the word search.

All participants were then instructed to complete the word search and stopped after two minutes. Participants were then instructed to turn to the stress rating scale page and to rate stress experienced during the task. Following the stress rating, participants were then given a debriefing form and allowed to retain the word search. All data collecting took place between the 8th and 9th of April, 2011.

Results

Figure 1 illustrates mean stress rating between time pressure conditions with and without the stress ball. A two-way ANOVA was used for data analysis; Table 1 shows a summary table of calculations. There were no significant interaction effects between time pressure and attribution object conditions ($F(4,36) = 0.05, p > .05$).

When told there was a two-minute time limit, participants' mean stress ratings were 4.25 ($SD = 2.27$). In contrast, when participants were not told about the time limit, mean ratings were 4.5 ($SD = 1.93$). There were no significant main effects found for time pressure conditions ($F(2,38) = 0.13, p > .05$).
Time Pressure and Attribution Effects

Figure 1. Participants' mean stress ratings in time pressure conditions, with or without the attribution object.
Time Pressure and Attribution Effects

When given a stress ball, participants' mean ratings were 4.35 (SD = 2.13). In contrast, when no stress ball was given, mean stress ratings were 4.40 (SD = 2.09). There were no significant main effects for stress ball conditions ($F(2,38) = 0.005, p > .05$).

Discussion

The present study was designed to examine the effects of time pressure and attributions on a simple puzzle task. It was hypothesized that under time pressure, participants would report lower stress ratings when given a stress relief object. The results of this study do not support the experimental hypothesis. No main effects for time pressure or attribution object were present. Additionally, results yielded no interactions for these independent variables. In terms of stress ratings, participants under time pressure conditions did not differ significantly from those in no pressure conditions. Perhaps the less than stressful nature of the puzzle or the lack of pressure felt to complete such a task.

However, the explanations for these results are only tentative and may be better interpreted in relation to previously mentioned literature. The study by Storms and Nisbett (1970) found that participants who believed pills causes high arousal tended to fall asleep sooner than those who did not. Here the placebo might have been a more realistic attribution; participants are perhaps more inclined to believe drugs will have significant effects. Drugs are used quite often to treat insomnia and this in itself involves a much clearer relationship. In the present study, concerns mainly revolve around the attribution object. It was perhaps not evident how a stress ball might relieve stress.
Time Pressure and Attribution Effects
created from a simple task. As mentioned previously stress reported during the task did not differ in time pressure conditions, and this might further account for these results.

The study by Zur and Breznitz (1980) seems to suggest that time pressure conditions are characterized by certain aspect of information processing. Under time pressure, participants sped up processing; felt unable to process all available information, and felt an increased likelihood of error. In the current study, a word search was used in conjunction with time pressure conditions. The nature of this task does not lend itself to the same information processing concerns previously mentioned. It is possible that participants may approach the puzzle in the same way, regardless of pressure conditions.

Further methodological concerns point towards the lack of risk or apparent value of puzzle performance. The Rodin and Zimbardo (1969) study provided an example of how attributions may be more evident when an inherit value or risk avoidance is present. Namely, results showed that participants reported lower levels when they misattributed fear symptoms to a noise rather than the expectation of an incoming shock. Similarly, the study by Verplanken (1993) involved a task where decisions were more complicated in terms of information processing and thus subject to differences in time pressure conditions. In the current study, stress reports may have been independent from the task and perhaps there was no need for attributions to be made.

Future research should implement more cognitively demanding tasks under time pressure conditions. The word search implemented in this study may have been too simple a task and perhaps required little information processing. Furthermore, the object should be more relevant to attribution conditions. The stress ball used in the current
Time Pressure and Attribution Effects

study lacked a relevant connection with stress conditions and how it would help the individual during the task. Researchers should also provide an incentive for task completions; for example, reinforcement or avoidance of punishment.

Further amendments to methodology concern more practical variations. Namely, using a constant setting to test individuals, such as time of day, and place tested. Additionally, a reliable scale should be implemented for stress assessments, as well as the effectiveness of the attributions made; asking participants whether the attribution object made a differences during the task. Future research should not be limited to stress conditions, previously mentioned literature suggests that lack of confidence or performance are also factors in time pressure situations. This study fits into the larger framework of research on time pressure and attribution constructs. Results in this study suggest revisions in methodological approach, as well as further research variations. Attribution processes can be tailored to a wide array of situations and it may prove beneficial to consider how attributions may vary in more practical settings. For example, work or school settings may be especially prone to time pressure and attribution conditions.
Time Pressure and Attribution Effects

References


Time Pressure and Attribution Effects

Appendix A: Stress Rating Scale

**Following the Word Search**

Please use this 7-point scale to indicate the amount of stress experienced (if any) during the task.

1 2 3 4 5 6 7

Not Stressed Very Stressed
Appendix B: Word Search

Alligator  Dog  Cow  Cat  Bird  Zebra  Lizard  Elephant  Fish  Fly  Seal
Squirrel  Dolphin  Cheetah  Duck  Lion  Lobster  Swordfish  Sheep  Shark
Time Pressure and Attribution Effects

Appendix C: Stress Ball
Time Pressure and Attribution Effects

Table 1.

*Summary Table For ANOVA Calculations*

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* *p < .05*