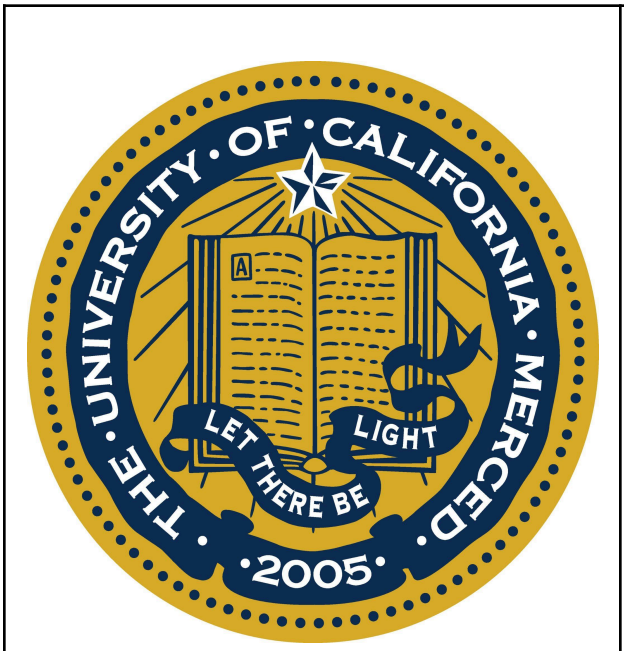

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Exploring the Moderating Effect of Cathartic Expression on Fading Affect Bias

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Abstract

Cathartic expression in psychology has been written about and discussed since the early 20th century. Early literature surrounding catharsis has described it as a useful tool in many therapies that laid the groundwork for many coping mechanisms that exist today. Many people describe cathartic release as a coping mechanism to deal with negative emotions, such as physically exercising while stressed. However, the effects of catharsis have not been studied and explored significantly in recent years. The model suggested by this study includes a phenomenon known as Fading Affect Bias (FAB), in which recollection of events trends to positive valence after a long period of time. Previous discussion regarding catharsis points to two main models by which catharsis is effective: a cognitive model and a hydraulic model. Working with these models of catharsis, this study aims to delve into the efficacy of catharsis and how strong the moderating effect would be on Fading Affect Bias. In this study, undergraduate students from the University of California, Merced played a game designed to induce frustration and then completed a survey (n=31). The survey items measured three dimensions relating to the game: Control, Fairness, and Enjoyment. The results show that there were significant differences between participants who experienced a cathartic intervention, while also being unable to show a significant effect accounting for the timescale in which FAB works.

Keywords: catharsis, fading affect bias, emotional regulation

Exploring the Moderating Effect of Cathartic Expression on Fading Affect Bias

The concept of catharsis in psychology is the purgation of strong, negative emotions. Catharsis has been a strongly debated topic since the time of Aristotle and Plato. Early critics described catharsis as harmful and ineffective, while early proponents described it as a way to diminish the severity of various illnesses. This debate has continued to this day, impacting research on its existence and effectiveness (Scheff & Bushnell, 1984). Due to the contested validity of catharsis, there has been little work done to find practical applications of cathartic interventions. Some modern work has applied catharsis in psychotherapies and has attempted to define models of cathartic expression (Straton, 1990). One of the primary models of catharsis in the 20th century was *aggression* catharsis (Scheff, 2007). This model is also known as the hydraulic model and is what is most commonly understood as cathartic expression. The hydraulic model consists of venting anger and other negative emotions through various methods. An example of venting anger may be using a punching bag or lifting weights (Bushman, 2002). This model of catharsis relies solely on relieving negative emotions in a physical manner without any active processing of emotion. However, there is a recent trend towards other models of catharsis. Many of these other models rely on the social or cognitive context of emotions and understanding how affect plays a role in well-being. One study looked at the immediate benefits of venting anger and found that individuals who vented felt an increased social standing, among other benefits. These results indicate that by sharing emotions, a deeper emotional processing occurs. This warrants further investigation into the complexities and mechanisms at play (Brans et al., 2014). Other models point towards goal-oriented behavior as underpinning cathartic expression, assuming that certain forms of catharsis may have utility depending on the conditions under which it is experienced (Denzler & Forster, 2012). Further aggressive behavior does not

reduce aggression in the long term, but allowing oneself to experience sadness can lead to positive health outcomes. Some researchers have found that the hydraulic model is completely ineffective at reducing and preventing negative emotions while suggesting that future studies should focus entirely on cognitive models of understanding cathartic expression (Bohart, 1980).

Despite the lack of replicable and novel research in the field of catharsis, as previously introduced, two theories of catharsis persist. Firstly, the hydraulic model, which involves venting of negative emotions, and secondly, the cognitive models, which involve cognitive processes along with emotional expression. There is no agreed-upon term for a "cognitive model," with many ideas being used to express the same model. For example, in the study done by Straton (1990), a cognitive model is labeled as "cathexis," whereas the review done by Scheff (2007) describes a cognitive model as socio-biological. While many cognitive models have been proposed, existing research fails to converge upon or conventionalize a mechanism by which cathartic expression functions.

Fading Affect Bias

Our study seeks to test the relationship between Fading Affect Bias and cathartic expression. Fading Affect Bias is the process by which the affect associated with negative memories becomes less intense while the affect associated with positive memories stays at a constant level. Studies have found that Fading Affect Bias is a robust effect in autobiographical memory with links to cognitive and social processes regarding the self (Walker & Skowronski, 2009). Fading Affect Bias has been researched considerably and has been shown to be a strong effect in many different studies. One study shows that Fading Affect Bias is a phenomenon in which affect at recall changes, while also changing how participants describe events, showing that their perception of the event has changed (Landau & Gunter, 2009). Other research has

shown Fading Affect Bias to occur even in situations where participants' recall of events was accurate; the positive change was not contingent on inaccurate recall or memory reconstruction. This effect emerges consistently across studies and has solidified Fading Affect Bias as a ubiquitous phenomenon (Ritche et al., 2009). There are many obvious uses and benefits of Fading Affect Bias, such as in the context of coping with death. In one study, Fading Affect Bias improved participant attitudes on death and allowed for healthier coping. Participants reported feelings that death was a natural process rather than viewing loss of a loved one as punishment (Gibbons et al., 2016). When looking at the timescale on which Fading Affect Bias works, it was shown that the effect can last for years but can start within a period of 12 hours (Gibbons et al., 2011). These findings indicate that Fading Affect Bias can enable positive appraisals and ensure healthier behavioral patterns.

The Present Study: Catharsis and Fading Affect Bias

This study intends to explore a possible link between cathartic expression and its role as a moderator for the Fading Affect Bias. Our hypothesis is that cathartic expression allows one to experience Fading Affect Bias on a shorter time scale, thus leading to more positive appraisals of situations. To test this link, we will have participants play a game to induce frustration and randomly assign participants to experience cathartic relief or be part of the control group. Furthermore, we will have a group experience frustration at a later time to affirm the presence of Fading Affect Bias, even on such a short timescale. We expect to see participants experiencing Fading Affect Bias and participants with the opportunity to express emotion (catharsis) to show a more positive affect.

Methods

Participants

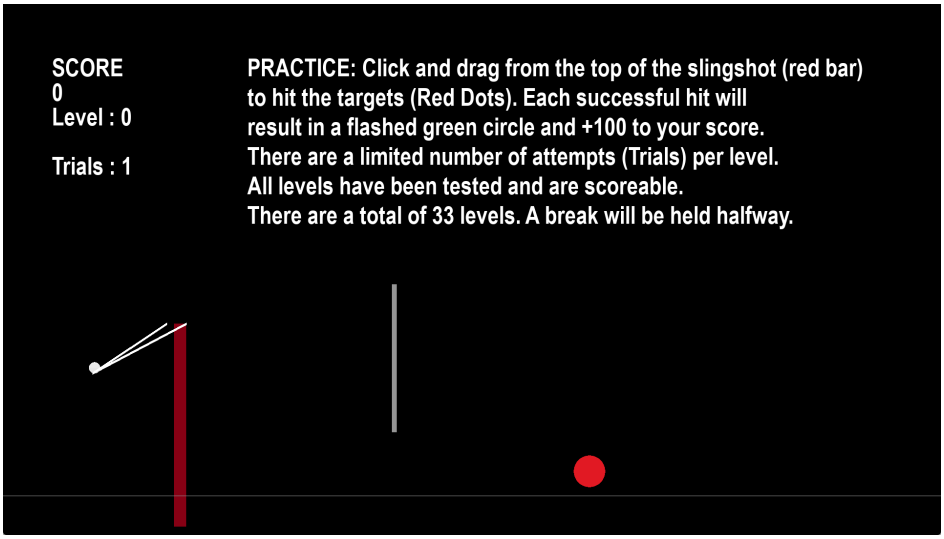
The study was conducted at the University of California, Merced. Undergraduate students were recruited through the SONA system, which allows undergraduate students to participate in research studies. This study was conducted in conjunction with a separate, independent study. The sample consisted of 33 undergraduate students, whose ages ranged from 18–22.

Materials

In order to induce frustration experimentally, a slingshot game was created. The game was similar to the popular mobile game, "Angry Birds." The task of the game was to launch a ball from a slingshot into a basket to earn points. There were a total of four stages, with each stage having 8 levels.

Figure 1

Screenshot of the tutorial level

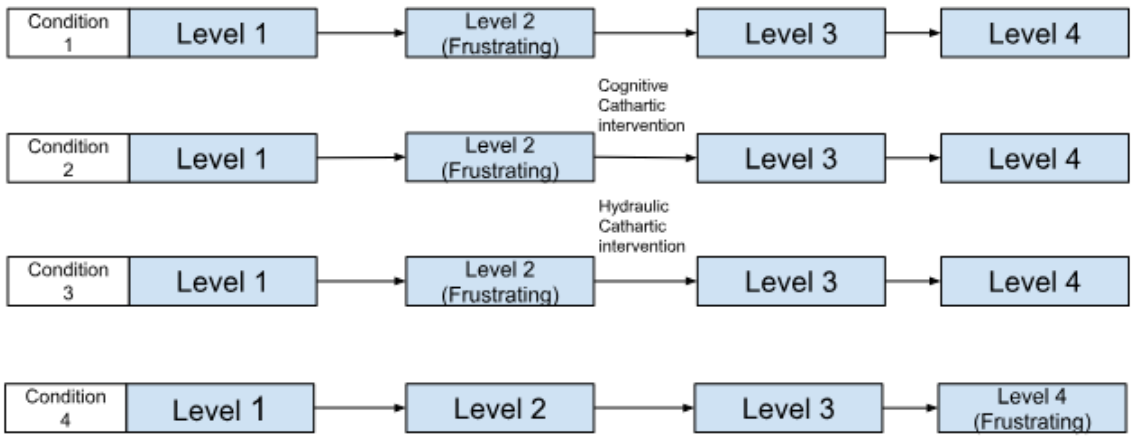


Artificial difficulty was introduced in the form of barriers that would require the participant to adapt their strategy. Levels intended to induce frustration appeared possible, while in reality, there was no possible method to earn points. Other levels had barriers in place to create

difficulty while also allowing participants to score points, thus allowing the participants to remain engaged with the game without leading to burnout. Cathartic interventions were administered in line with both a cognitive model and a hydraulic model. Participants assigned to the cognitive cathartic condition were asked to complete a short survey after the frustrating level. This survey induced emotional recollection by asking participants to reflect on events from their lives with strong emotional valence. The hydraulic condition involved participants completing a frustrating level, and then playing with a ball while sitting in a comfortable armchair. In order to test the presence of Fading Affect Bias, we had one condition in which the final level was the frustrating condition. This allowed us to observe the effect of time on participant affect.

Figure 2

Model of participant conditions



All participants answered a 13-item measurement, which was developed to capture three dimensions of participant experience playing the slingshot game: Sense of Control, Fairness, and Enjoyment. Each component was measured on a continuous scale from 1 (disagree completely) to 100 (agree completely). The dimension of Control had three components, and included questions such as “Most of my points were made due to good luck.” The dimension of Fairness

had seven items and included questions such as “The position of the goals/targets was fair.” Finally, the dimension of Enjoyment had three items and included questions such as “I would recommend or play this game again.” The full list of items can be found in Appendix A.

Procedure

This study recruited undergraduate students from the University of California, Merced using the SONA system. The experiment was described as providing feedback on a game in development, with the true goal being to assess their emotional responses. After playing the game, each participant would complete a survey on Qualtrics. The true purpose of the study was revealed to the participants at the end of the study.

Analysis

Participant responses were combined and analyzed as independent observations for each dimension. This is justifiable as we purport that survey items have high overlap in capturing and operationalizing within each grouping dimension. The data was coded to indicate higher agreement as larger numbers (>50), and lower agreement as lower numbers (<50). In order to explore the difference of means between the conditions, a one-way ANOVA was conducted to determine significance. Follow-up analyses, namely Tukey’s post hoc tests, were conducted to analyze which particular groups differed for dimensions that showed statistical significance.

Results

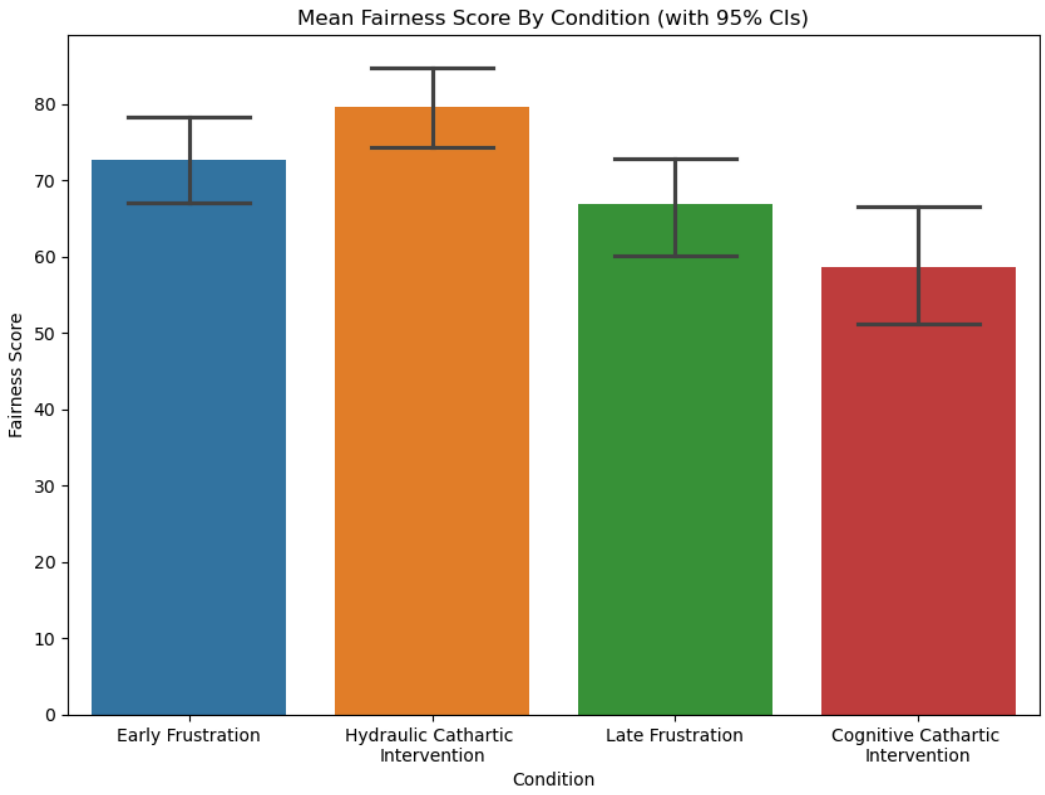
The results of the one-way ANOVA for the Control dimension showed that there was an insignificant difference at the p <.05 level for the four conditions $F(3, 86) = .534$, $p = .660$. As such, those analyses have been excluded from the reported results and the following discussion. The results of the one-way ANOVA for the Fairness dimension showed that there was a significant difference at the p <.05 level for the four conditions $F(3, 207) = 7.405$, $p = .001$. The

results of the one-way ANOVA for the Enjoyment dimension showed that there was a significant difference at the p <.05 level for the four conditions $F(3, 86) = 2.725$, p =.049. Post-hoc Tukey tests indicated that the conditions differed significantly at p <.05 only for Fairness, specifically, between the Cognitive Cathartic Intervention and Hydraulic Cathartic Intervention conditions. Figures visualizing the means for Control and Enjoyment can be found in Appendix A.

As shown in Figure 2, the appraisals for Fairness were varied among conditions. The condition with hydraulic cathartic expression expressed the most fairness, followed by the early frustration condition, then the late frustration condition, and finally the cognitive cathartic intervention.

Figure 3

Reported fairness of the game moderated by cathartic expression



Discussion

The key finding from this study is that cathartic intervention does have a significant effect, but can have varying effects ranging from beneficial to harmful. Compared to the control groups of no cathartic intervention, the hydraulic cathartic intervention led to higher perceived fairness of the game. Conversely, the cognitive cathartic intervention created the lowest perceived fairness of the game. Interestingly, the cathartic conditions had lower scores for reported enjoyment compared to both control groups, as the hydraulic cathartic condition and the cognitive cathartic intervention. These results indicate that cathartic interventions can be helpful, but not in every situation. Our findings appear to be in line with Denzler and Forster (2012), who purport that there is a higher degree of specificity to cathartic intervention than previously assumed. The data also implies that Fading Affect Bias is not the mechanism by which catharsis functions as both cathartic interventions showed lower positive valence for enjoyment. Since Fading Affect Bias primarily works to alter affect at recall and create a more positive valence, we can claim that there is no relationship between cathartic intervention, as both cathartic conditions led to significantly less positive valence.

Using this data, we can still draw conclusions about emotional regulation and appraisals of stressful situations. Since participants who experienced hydraulic catharsis reported higher perceived fairness of their task this could allow for a greater sense of competency to develop. This perceived ability could then cascade into further positive effects, such as improved sense of self (Cole et al., 1999). Furthermore, a belief that a situation is equitable can lead to more efficient stress response as it has been demonstrated that people who utilize active coping strategies can prevent maladaptive behavior formation (Sinha et al., 2016). These positive

appraisals and use of active coping in stressful situations can then lead to better health outcomes (Tugade et al., 2004). A better understanding of the positive effects of catharsis could make it more effective in everyday life. Catharsis can then be practiced to allow for a new form of active coping, should the situation be appropriate.

While our data highlights how hydraulic catharsis can be effective, it also shows how it can be ineffective. Similarly, our data also showed cognitive catharsis to be wholly ineffective, as it showed lower levels of valence in both fairness and enjoyment. It should be remembered that there exists a large degree of granularity in catharsis (Denzler & Forster, 2012), and our experiment should only be considered as the beginning of a larger series of studies that further investigate catharsis' role in emotional processing and regulation.

Limitations

There are two main limitations present that could be improved upon. The first limitation is regarding data collection. The results were gathered by a survey with an interval scale. This could lead to variance in data and can not be easily replicated. A future study could use a Likert scale with more defined rating labels or an objective measure of stress, such as skin conductance response or measurements of neural activity. The second limitation relates to the granularity of our experiment in the context of cathartic expression. Our experiment covers one specific type of stressor, and as such, can only be applied to similar events. There are many different categories of stressful events present in everyday life, and our results are not applicable to all of them.

Future Directions

The first and most significant future direction would be to find scenarios in which cathartic expression is effective, and attempt to draw out defining context features. Our experimental design consisted of a frustrating video game, but if the design were to

accommodate a physical stressor, then we might observe different results across the various forms of cathartic expression. The scope of cathartic expression is very limited in this experiment, and can be widened to include various situations and stressors that people face in everyday life. Second, the form of cathartic expression can be expanded. Various methods could include talking with a friend, watching an emotional piece of media, engaging in painting, and many more. These are all practical applications that could then be used to see whether or not the average person could incorporate cathartic expression in their daily lives. Finally, a more directed approach towards cathartic expression could be investigated to assess utility in guided therapies and clinical contexts (Nakao et al., 2021).

While we were only able to draw limited conclusions regarding cathartic expression and its efficacy, a foundation exists for further research. We were unable to draw a link between Fading Affect Bias and cathartic expression, but a cognitive mechanism can still be investigated and defined. Exploring various forms of cathartic expression can lead to improved health outcomes by providing new coping strategies and ways to regulate emotions.

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Appendix A

Questionnaire Items

Rate how much you agree with the following statement on a scale of 1-100, with 1 being entirely disagree and 100 being entirely agree.

Control:

- If I tried harder at this game, I could get better at it.
- Most of my points were made due to good luck.
- Most of my misses were due to bad luck.

Fairness:

- The position of the obstacles were fair.
- The position of the goals/targets were fair.
- The “hitbox” of the goals/targets were fair.
- The position of the slingshot was fair.
- The behavior of the slingshot was fair.
- The game was responsive.

Enjoyment:

- The game was fun.
- The game was frustrating.
- I would recommend this game or play the game again.

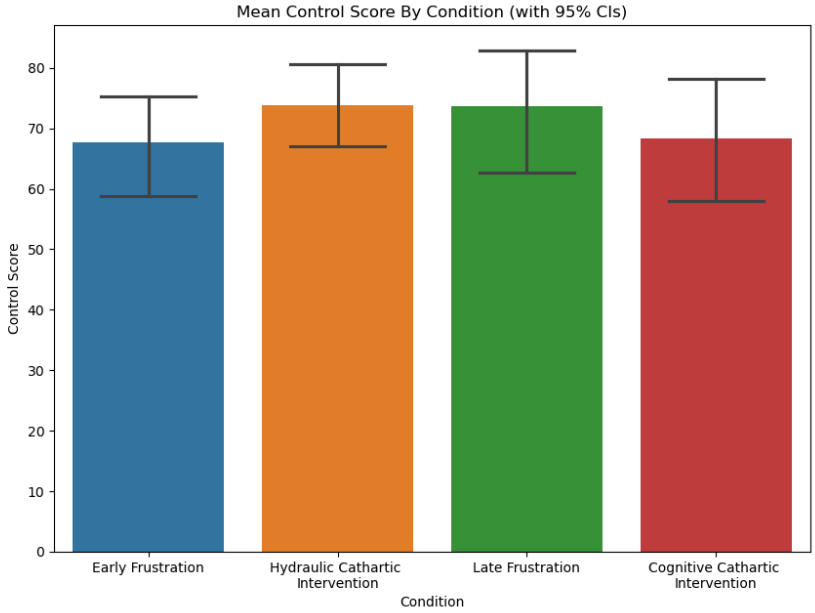

Figure A1. Reported Control of the game moderated by cathartic expression

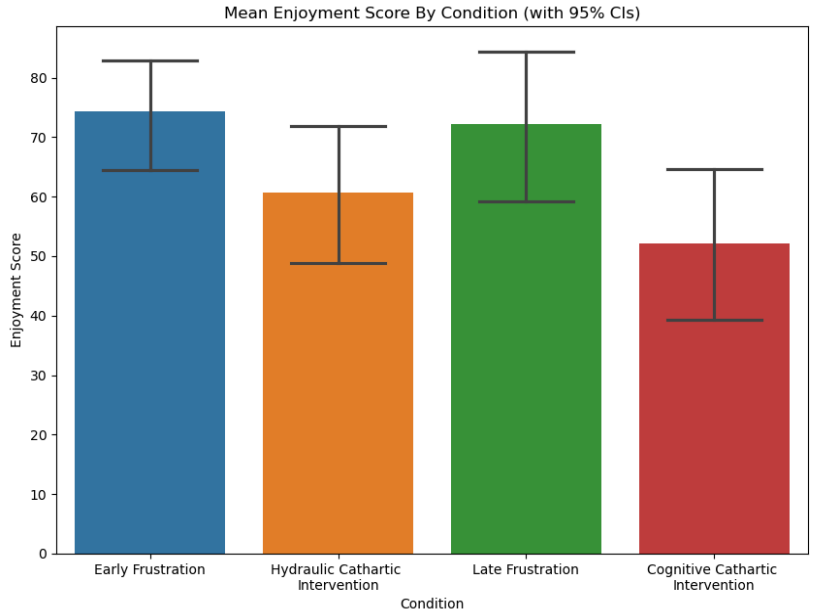

Figure A2. Reported Enjoyment of the game moderated by cathartic expression