

How the Entertaining Effects of Movies Help People to Reduce Chronic Stress and Increase Happiness

Zhesheng (Jason) Xu

Abstract—With the increasing stress from work and study that people face today, easy-to-access entertainment to release chronic stress and increase happiness would arouse more popularity. As a traditional entertainment industry, Movie is easy to access by going to the cinema or watching online, which has become an increasingly globalized business. The present research was on how the entertaining effects of movies are associated with psychological well-being. It provides a study on three film types, comedies, tearjerkers, and thrilling movies. Comic movies are usually welcome, which bring people happiness by funny plots. Moreover, many scientific experiments made before verified that people will unconsciously mimic the facial expressions of characters in comedies, which turns out to affect the experience of the same emotion of happiness through the integration between the body and brain. Tearjerkers may bring people tears. However, an experiment made by Grac'anin, Vingerhoets, Kardum, Šantek,& Šimic' (2015), provided evidence that after the initial deterioration of mood following crying, it takes some time for the mood, not just to recover, but also to become even less negative than before the emotional event. Per Sapolsky, R.M, scary and thrilling movies generate moderate glucocorticoid elevation, which turns out to trigger the release of dopamine from pleasure pathways and gain a sense of anticipatory pleasure. Besides the above mentioned, there are also general benefits of movies, such as social connections, a distraction from worries, and increased flow. All of those make movies good activities to reduce chronic stress and increase happiness.

Index Terms—Anticipatory pleasure, chronic stress, emotion integration, glucocorticoid elevation, transient stress.

I. INTRODUCTION

The film industry has become an increasingly globalized business. Netflix has assumed a larger market share, and online movies adapted from the literature have continued to gain in popularity in our society. By Jan 1st, 2020, the movie industry made a box-office record of USD 64.1billion, an increase of 5.7% comparing 2019 [1]. Why do so many people around the world love movies? How do people benefit from this entertainment?

Two benefits are associated with psychological well-being. One is to reduce chronic stress; the other is to increase happiness. This literature review aims to examine how movies as entertainment help people succeed in these two ways. This literature does not discuss extreme situations, for example, taking the movie as a soldier training tool, propaganda, or hypnosis control. This literature will provide overviews of three film types, comedies, tearjerkers, and thrilling movies, which we usually watch in a movie theatre

and are willing to pay for entertainment. In comedic movies, I discuss unconscious mimicry and how does emotion integration system involving both body and brain promote people's happiness. In tearjerkers, the examination is on the research of how tears coping stress reduction. In scary and thrilling movies, the research focuses on how transient stress generates moderate glucocorticoid elevation, therefore triggering dopamine from pleasure pathways. Besides the review for those three typical types, I also discussed the general benefits of movies, such as social connections, a distraction from worries, and increased flow. All of those make movies be considered as activities to reduce chronic stress and increase happiness.

Throughout the review, I examined the research and provided the supporting theories on how movies help reduce chronic stress and increase happiness. Finally, I end by pointing out a limitation in the existing literature and exploring potential future research directions.

II. COMEDIC MOVIES

If you have experience watching comedies in cinema, you may be aware that not every comedy is funny enough to make you laugh. If you watch a comedy that has a funny plot and pleasurable context related to your life that you resonate with, you will likely experience happiness. However, what if the context does not appeal to you? How does comedy bring you happiness? Why do we still laugh and smile in the cinema while the comedy is indeed not so funny? Dimberg, Thunber, and Elmehed [2] provided evidence that mimicry of facial expressions occurs automatically. Three groups of participants were exposed to either happy, sad, or neutral faces for 30 milliseconds, then followed by a neutral face for 5 seconds. This short presentation duration in combination with the backward masking technique prevented participants from consciously perceiving the target (happy or sad) stimuli. While participants viewed the stimuli, their spontaneous facial electromyographic activity was recorded. The experiments found that participants mimicked the facial expressions unconsciously. They smiled more when they interacted with happy stimuli compared to sad or neutral stimuli. That is why people smile more while watching characters with funny and exaggerated faces in comedies.

How do making physical facial expressions affect the experience of emotions? A familiar contention is that “when you are smiling, the whole world smiles with you.”

In 1988, a behavioral experiment was conducted to demonstrate that if you adopt the physical expressions or behaviors associated with an emotional state, the subjective experience will be felt too [3]. The researchers told participants that they were interested in how well people could perform cognitive tasks when they had to respond with

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body parts other than what they were accustomed to using. In one experiment, researchers have affixed golf tees to the inside of participants' eyebrows, request them to bring the ends of the golf tees together (makes a frown) when seeing a negative picture.

In another condition, participants are requested to hold a pen between the teeth (makes a smile) when seeing a positive picture. All participants didn't notice that the tasks were making them pose like they were frowning or smiling. Researchers used fMRI scanning to measure their brain's responses when they imitate facial expressions. The outcome shows that all physical expressions would activate the somatosensory and motor cortices, therefore triggering the same emotion in the brain [4].

From all above, we can see how people unconsciously mimic the facial expressions of characters in comedies, therefore affect the experience of the same emotion of happiness through the integration between the body and brain. And that's not to mention that comedy's funny plot itself would bring people happiness as well. So, in short, whether comedies are funny or not, they can help people to reduce stress and increase happiness to some extent.

III. TEARJERKERS

One may doubt there is a benefit from watching tearjerkers. Do people feel better after crying?

There is evidence among popular literature on the effects of crying as a positive expression and release of emotion. One study found that 94% of magazine articles on crying over 140 years recommended crying as beneficial for one's well-being or as "healthy" [5].

In recent research, an experiment was specifically designed to evaluate a parsimonious explanation for this paradox by assessing mood after crying in a laboratory, both immediately and at follow-up at 20 min and 90 min. Mood ratings of 28 objectively established criers and 32 non-criers were compared before and immediately after the exposure to an emotional movie, as well as 20 and 90 min later. Finding that indeed, mood improves after a short amount of time for both criers and non-criers but appears to improve even further only for those who cried at follow-up 90 min later (see Figure 1).

Criers subsequently reported mood enhancements at the final measurement compared to the pre-film measurement [6].

The observed relation between crying and more long-term mood recovery reconciles provides a simple and obvious explanation. After the initial deterioration of mood following crying observed in laboratory studies, it takes some time for the mood, not just to recover but also to become even less negative than before the emotional event, which corresponds to the results of retrospective studies [6].

Also, one study found that although heart rate increased during the onset of crying, this increase was only maintained for the 1-min period after crying began. Conversely, respiration rate showed an extended period of reduction, continuing for at least 3 min post-crying onset. It is possible that crying is a means to restore psychological and physiological balance [7].

Those researches provided evidence that tearjerkers could

help people, whatever cried or not, release negative emotion and improve mood. Those tearjerkers lovers who cried more than others may improve more in emotion. Crying as a means to restore psychological and physiological balance would also be good for health, therefore indirectly improving happiness.

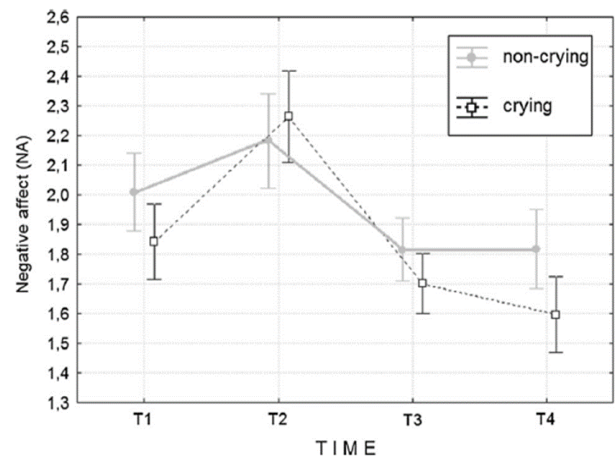


Fig. 1. Means and SEs of Negative Affect in crying and non-crying groups at T1, T2, T3 and T4. T1, pre-film; T2, post-film; T3, follow up at 20min; T4, follow up at 90 min [6].

IV. SCARY AND THRILLING MOVIES

Besides comedies and tearjerkers, many people love scary and thriller movies. Though people will feel acute stress while watching scary and thrilling movies, some stressors trigger a sense of pleasure.

Sapolsky, R.M. [8] stated that our brain contains a pleasure pathway that makes use of the neurotransmitter dopamine. The activation of the dopamine pathway causes neurons in the frontal cortex to become their most active in response to incentives. At the scene of the crime for virtually, stress-related hormone---glucocorticoids will be secreted. Then the glucocorticoids will trigger the release of dopamine from pleasure pathways. Suppose the contexts of incentives are safe, short-term, in a benign environment. In that case, the lack of predictability will generate moderate and transient glucocorticoid elevation, hence maximize dopamine release and a sense of anticipatory pleasure. Only when people experience severe and prolonged glucocorticoid exposure will it cause dopamine depletion, dysphoria, and depression. In France, neuroscientists used coulometry (electrochemical technique) coupled to high-performance liquid chromatography (HPLC) to study the dopamine release in primary cultures of embryonic mesencephalic dopaminergic neurons, and one finding is that dopamine release is sensitive to the manipulation of glucocorticoids and make 'inverse U' relationship [9]. Besides glucocorticoid-dopamine release, transient stress is also accompanied by transient activation of the amygdala and then releases dopamine. Also, activation of the sympathetic nervous system in transient stress could increase glucose and oxygen delivery to the brain, which as a result, make people feel focused, alert, alive, motivated, and anticipatory [8].

Let's look at the movie in a large context. Does it provide people a safe, short term and the benign environment with unpredictable surprises? Firstly, we all know we are safe in

the movie theatre. No thrilling murder or catastrophe flooding will dash out of the screen to hurt us. That is all fake! Secondly, we know how long the movie will last – no more than three and half hours. It is an acceptable time that we have had preparation already. Last but not least, the scary and thrilling movie usually provides us ups and downs of the plot, accompanied by live music and light. We also know we have the freedom to enjoy this unpredictable ‘scary’ or leave anytime if the ‘scary’ level is over what we expect. In other words, the movies indeed provide audiences with ‘safe’ unpredictable surprises.

Overall, the scary and thrilling movies provide incentives in large contexts of a safe, short-term, and benign environment. The lack of predictability plots turns out to generate moderate and transient glucocorticoid elevation, therefore triggering the release of dopamine from pleasure pathways. Above is the reason why scary and thrilling movies do bring people happiness.

V. GENERAL BENEFIT FROM MOVIE

Movies as a prevalent entertainment in our society, it has general advantages to make people happier. People could have more social contact opportunities by discussing the scenes and stories of films with friends or community members.

For example, if you are a fan of Star Trek, you easily find your group or club with the same interests. Movies provide those different people who should have had no interaction in life the opportunities to share the same adventures, stories, and values, thus potentially bolstering social support and reinforcing friendship. Meanwhile, watching the movie could offer the potential for flow as well as a positive distraction that turns away worries and rumination. It essentially serves as a time-out from your stressful day, forgetting all stuff in real life, immersed in the wonderful stories, whatever funny, sorrowful, exciting for hours in the movie theatre. Investing in social connection, increasing flow, and distraction from rumination are all listed as beneficial activities to increase happiness and reduce chronic stress [10].

VI. CONCLUSION

From the research, I conclude that movies as entertainment can help people reduce chronic stress and increase happiness. In comedies, the funny and humorous content is enough to make people laugh. If not, due to unconscious mimicry and emotional integration between physical expression and experience emotion in the brain will also bring people happiness. In tearjerkers, tears can help people reduce stress and restore psychological and physiological balance as well. In scary and thrilling movies, though some transient stress is aroused, it turns out to generate moderate glucocorticoid elevation, therefore triggering dopamine release from pleasure pathways. Besides, movies as a prevalent entertainment bring general benefits, such as social connections, a distraction from worries, and increases the flow. All of those are effective activities to reduce chronic stress and increase happiness.

Though the research is compelling but has significant limitations. Research is generally based on psychology and

neuroscience theories, giving the difficulty in finding empirical researches assessing stress reduction and happiness change by a movie before and after. Considering the audiences' variety in preposition of cultures, values, genes, and endocrinology, the effect on individuals is complex and not easily comparable. For example, people may generate glucocorticoids and dopamine at different levels to face the same context, therefore experiencing differently in scary movies.

Further research is recommended to study participants by groups in response to different movies, assessing stress and happiness scale before, immediately, and at follow-up. The participants' groups could be assigned in different ways upon individual interests, ages, genders, or occupations. Then the comparable outcome could be measured considering the effect from the above categories. Further research could also be on measuring how endocrinology affects people to induce them to become in favor of different types of comedy, tearjerker, and scary movies.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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