

The Effect of Empathy induced by Positive Events on Subjective Value of Reward: Preliminary Study

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ABSTRACT

Recent studies have focused on human empathic behavior regarding to physical, cognitive, and emotional aspects. Especially empathy is considered as a multidisciplinary study because of its wide application. However, majority of the studies have been focusing on empathy induced by negative emotion and physical pain. As a result, the purpose of this study, based on Loggia et al. (2008), is to investigate if empathy could be induced by positive events, and consequently if the positive empathy could increase subjective value of reward. According to the result of experiment which involved eight participants, we could confirm the inducement of empathy by positive events significantly; its power is not so strong though. However there was no interaction between empathy type (positive and no empathy) and whether the target received the reward or not. But if we would recruit more participants and additionally analyze correlation among trait/empathic state questionnaire, subjective ratings of the reward and emotion of the target, we suggest that this study would be valuable in that it could expand the empathy studies.

Keyword: Empathy, Positive Event, Emotion

1. Introduction

Recent studies have focused on human empathic behavior regarding to physical, cognitive, and emotional aspects [4]. Especially empathy is considered as a multidisciplinary study because of its wide application. However, majority of the studies have been focusing on empathy induced by negative emotion and physical pain

[1] [5] [6] [7] [9]. The reason is related with easiness in experimental circumstance. As a result these studies only show a limited picture of empathy, because empathic behaviors do not always occur only in negative situation in our everyday lives. Empathic behaviors induced by positive events have been not focused yet.

Thus the purpose of this study, based on Loggia et al. (2008) [1], is to investigate if empathy could be induced

by positive events, and consequently if the positive empathy could increase subjective value of reward. To be more specific, we investigated if there is a difference of subjective value of reward according to whether the positive empathy is induced or not. On top of that, the interaction between the simultaneity of reward with the target and existence of positive empathy is another concern.

Hypotheses of this study are as follows;

H1. Empathy would occur because of positive events as well as negative ones.

H2. Participants would perceive the value of reward differently according to whether the positive empathy was induced or not.

H3. If positive empathy occurs, the subjective value of reward received simultaneously with the target together (on the screen) would be higher than got alone.

2. Method

The experiment is mixed factorial design of 2 (empathy: positive empathy or no-empathy) X 2 (synchronism of reward: synchronous or asynchronous) where 'empathy' is a between-subject and 'synchronism of reward' is a within-subject variable, which means that every participant experiences both the synchronous and asynchronous reward with the target.

At first participants watched a video clip whose duration is about 1 minute on the computer monitor. Two different video clips were created according to the purpose of the study: inducing empathy or not. Participants were randomly assigned to one of the both conditions. The level of empathy and emotional states were rated on scales in order to measure if empathy was effectively induced. After the clip session, they take a dummy task while watching another video clip where the empathy target does the same task. During the task,

participants received rewards (500 won) with and without the target in the video 2 times respectively. Whenever they get the money, they rated on the Likert scale about the value of reward and experienced emotion. After the task session, they rated about the trait feature. The experiment lasted approximately 30 minutes.

3. Stimuli

3.1. Video clips for inducing empathy

Empathy with a target was induced with video clips created by the authors. In 'Positive empathy clip', a target talks about his personal positive history which illustrates that he conquered his poor background and succeeded to get a good job. In 'No-empathy clip', the target talks about his opinion on a certain research.

3.2. Measurement of empathy inducing

We translated and employed a questionnaire Loggia et al. used in their study in 2008 in order to measure if manipulating inducement of empathy by the video [6]. This is 7-point scale and the 5 questions in the scale are concerned, warm, empathic, compassionate, and softhearted.

3.3. Measurement of emotion

We employed one bipolar 7-point scale (1: very negative, 7: very positive) and participants rated on the scale about their emotional state.

3.4. Perception of the value of the reward

One question of 'how much is the subjective value of the money you received?' was used, it was also 7-point scale (1: of no value, 7: very invaluable).

3.5. Empathy ability

We employed an empathy ability questionnaire which Park, Sung Hee (1997) translated and used from Davis (1980)'s IRI (Interpersonal Reactivity Index) and Bryant (1982)'s index of empathy [2] [3] [8]. This questionnaire is consisted of 4 parts; role taking, imagination, empathic interest, and personal pain, 30 5-point questions.

4. Results and discussion

According to the result of experiment which involved eight participants, we could find the tendency of the inducement of empathy by positive events; its power is not strong though.

Except for 'empathic', the scores of positive empathy condition were higher than the scores of no-empathy condition in the rest of the questions [Figure 1].

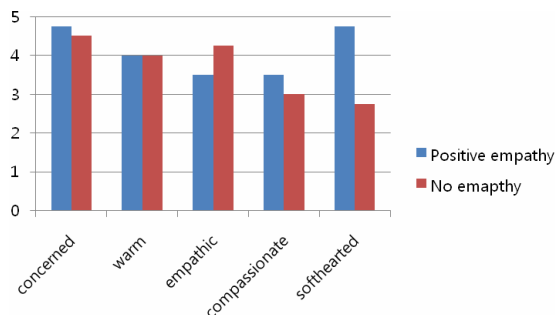


Figure 1. Empathic levels of Positive and No empathy groups

Also we found significant difference of emotional state between two groups, $F(1, 6) = 6.00$, $p < .05$. The score of positive empathy group increased after the clip session (before: $M = 4.25$, after: $M = 4.75$), while in no empathy group, while the score of no empathy slightly decreased (before: $M = 5.00$, after: $M = 4.5$).

However, there was no interaction between empathy type (positive and no empathy) and whether the target received the reward or not, and statistical analysis of trait

questionnaire was not carried out because of shortage of participants

This study is meaningful in that while previous studies only have focused on empathic behavior induced by negative events, this study considered positive empathy as well. Though the result could not show that perception of subjective value of the reward could depend on whether empathy was induced or not, it is too impatient if we conclude that previous studies cannot be applied to positive situation because the participant were too small in number. Further studies should recruit more participants and investigate additional statistical analysis about the relationship between personality features such as trait.

References

- [1] Avenanti, A., Buetti, D., Galati, G., & Aglioti, S. M. (2005). Transcranial magnetic stimulation highlights the sensorimotor side of empathy for pain. *Nature Neuroscience*, 8, 955–60.
- [2] Bryant, B.K. (1982). An index of empathy for children and adolescents. *Child Development*, 53, 413–425.
- [3] Davis, M. H. (1980). A Multidimensional approach to Individual differences in Empathy. *JSAS Catalog of Selected Documents in Psychology* 10 (1980), p. 85.
- [4] Decety, J., & Jackson, P. L. (2006). A social-neuroscience perspective on empathy. *Current Directions in Psychological Science*, 15, 54–58.
- [5] Jackson, P., Meltzoff, A., & Decety J. (2005). How do we perceive the pain of others? A window into the neural processes involved in empathy. *Neuroimage*, 24, 771–9.
- [6] Loggia, M., Mogil, J., & Bushnell, M. (2008). Empathy hurts: Compassion for another increases both sensory and

affective components of pain perception. *Pain*, 136, 168-176.

- [7] Morrison, I., Lloyd, D., Di, P., & Roberts N. (2004). Vicarious responses to pain in anterior cingulate cortex: is empathy a multisensory issue? *Cognitive, Affective, & Behavioral Neuroscience*, 4, 270-8.
- [8] Park, S. H. (1997). *공감과 친사회행동*. 서울: 문음사.
- [9] Singer, T., Seymour, B, O'Doherty, J., Kaube, H., Dolan R., & Frith C. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science*, 303, 1157-62.