

The Role of Future Time Perspective and Perceived Stress in Delay Discounting



Usha Persaud

Mercy College School of Social & Behavioral Sciences
Department of Psychology Advisor: Lisa Ecklund-Flores, PhD



INTRODUCTION

❖ Each day is filled with new choices and decisions to be made which inevitably affect our daily functioning. When making an everyday choice, for instance, one might choose to enjoy the immediate gratification of an impulsive purchase instead of saving up for important future financial obligations, such as monthly bills.



❖ Delay discounting rates quantitatively describe a person's level of impulsivity and self-control by measuring preference for a small, immediate reward versus a large, delayed reward. Typically, the longer it takes to receive a reward, the less valued it becomes.



❖ Age, level of education, self-control, and situational contexts are a few factors that influence decision making and have been widely studied.

❖ A person's perception of the future affects present actions as well as planning and executing future goals. Stress directly affects behavioral, cognitive, and physical functioning. Both variables have been shown to alter the decision making process.

❖ Previous research has shown that future time perspective and stress each affect decision making, but very few have investigated both factors in relation to delay discounting.

❖ The first aim of the present study was to explore how future thinking relates to decision making in a monetary decision making task. Second, we examined how self-reports of stress interact with future time perspective to influence delay discounting.



METHODS

❖ Forty-two participants were recruited through social media sites and online college classes (See Table 1).

❖ Future orientation, self-perceived stress, and impulsivity were measured using the following questionnaires, respectively:

1. Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999); i.e. "I do things impulsively."
2. Perceived Stress Scale (Cohen et al., 1983); i.e. "In the last month, how often have you felt nervous and "stressed"?"
3. Kirby Monetary Choice Questionnaire (Kirby, Petry, & Bickel, 1999); i.e. "Would you prefer \$25 today or \$60 in 14 days?"

METHODS

❖ Statistical analyses consisted of Pearson correlations between the variables of interest and a univariate analysis of variance to investigate the main effects and interactions between variables.

Table 1. Participant demographics (N = 42)

	Mean (SD) & Percentages
Age	25.8 (6.96)
Gender	M= 33.3% F= 66.7%
Education Level	
High School	12.2%
Associate's Degree	14.6%
Some College/College Grad	51.2%
Graduate Degree	22.0%
Social Class	
Working	24.4%
Middle	53.7%
Upper Middle	22.0%
Estimated Annual Income	
\$0-\$20,000	47.4%
\$20,000-\$40,000	18.4%
\$40,000-\$60,000	18.4%
\$60,000-\$80,000	7.9%
\$80,000-\$100,000	5.3%
\$100,000+	2.6%

RESULTS

❖ Results indicated a significant moderate negative correlation between perceived stress and future time perspective. Neither stress nor future orientation correlated with discounting rates (See Table 2).

Table 2. Descriptive statistics (mean and SD) and correlation matrix of the variables of interest

	Mean	SD	PSS	ZTPI Future	k-value
PSS	25.1	6.45	---	$r = -.317$ $p = .049^*$	$r = 0.02$ $p = .904$
ZTPI Future	3.75	0.46		---	$r = -.039$ $p = .807$
k-value	-4.40	1.63			---

* $p < .05$

Notes: PSS: Perceived Stress Scale (Cohen et al., 1983); ZTPI Future: Zimbardo Time Perspective Inventory Future Subscale (Zimbardo & Boyd, 1999); k-value: discounting rate. Higher (less negative) k-values indicate preference for smaller, immediate rewards over larger, later rewards.

❖ In the univariate analysis of variance, there were no significant main effects for the influence of future orientation or perceived stress on discounting rates.

RESULTS

❖ There was a significant interaction between future orientation and perceived stress in relation to the delay discounting task (See Figure 1). Perceived stress became more important in decision making when individuals were more future oriented. More specifically, in highly future oriented individuals, stress was a significant mediator and moderate predictor of delay discounting performance.

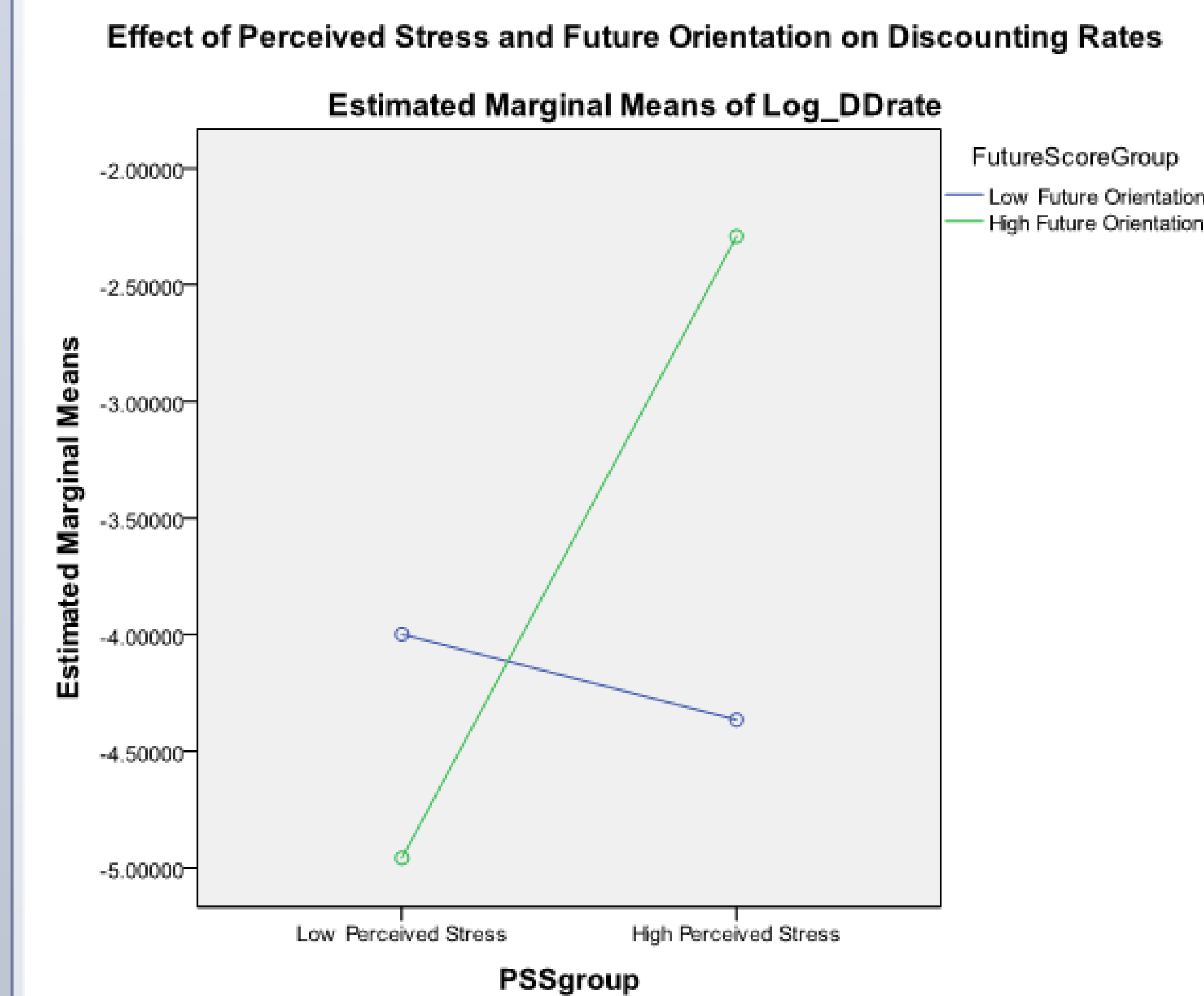


Figure 1. Profile plot of main effect factors on discount rate for each group

Notes: Groups: Low Perceived Stress, High Perceived Stress, Low Future Orientation, High Future Orientation. There is a significant interaction between perceived stress and future orientation on discount rate, showing that highly future oriented individuals exhibit greater discounting (more impulsiveness) when they perceive a high degree of stress.

❖ The only demographic variable that was related to discounting rate was gender. Females displayed a significantly greater preference for smaller, sooner rewards and more impulsiveness in comparison to males.

CONCLUSIONS

❖ Contradictory to the first half of our twofold hypothesis, the results of our study indicated that there was no independent effect of future time perspective or perceived stress on discounting rates when examined separately. However, as posited in the second half of our hypothesis, there was a significant interaction between future orientation and the appraisal of stress on delay discounting.



CONCLUSIONS

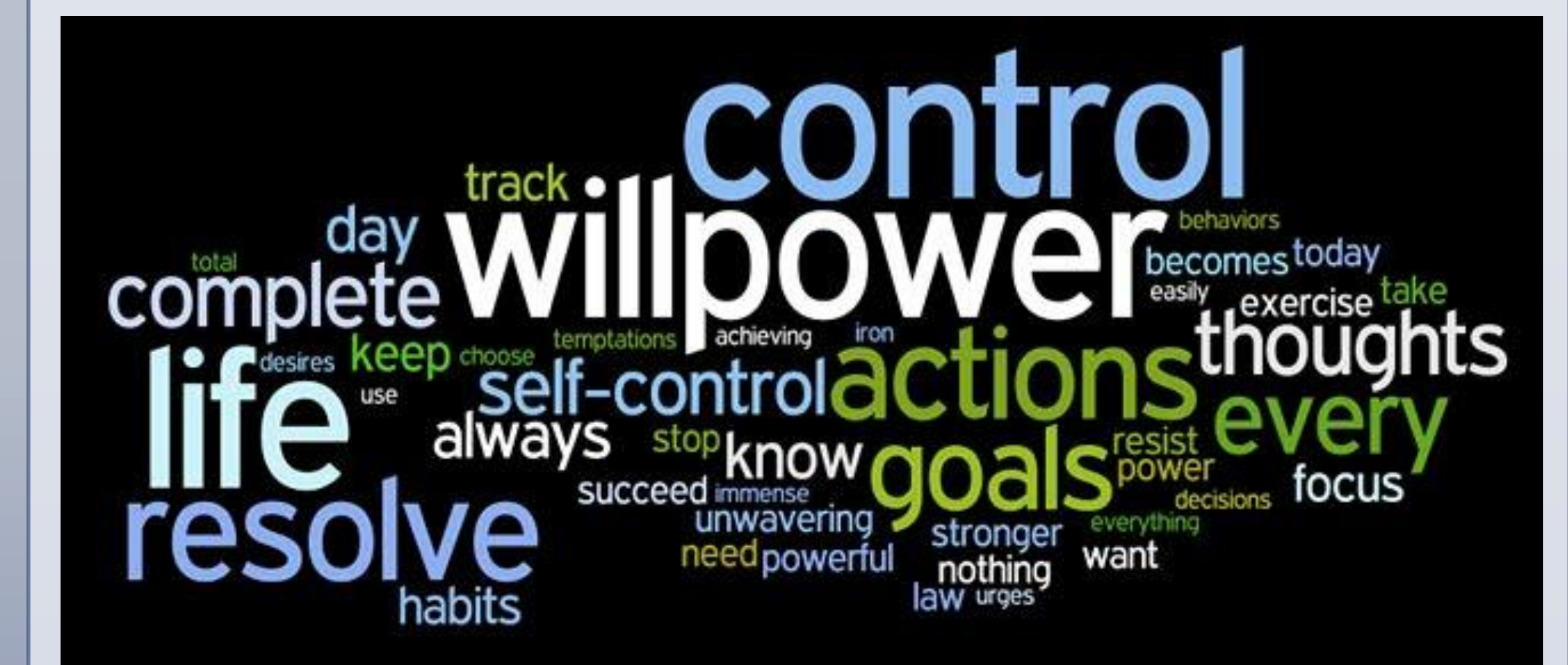
❖ Based on our findings, we can conclude that perceived stress matters more in decision making depending on a person's future time perspective. For individuals who are less future oriented and more present oriented, their perception of stress does not greatly affect their choices between smaller, immediate rewards and larger, later rewards. Such behavior may be related to their "in the moment" and present oriented outlook on life.

❖ For individuals who are highly future oriented, high perceived stress is related to an increase in impulsivity. These individuals chose more small, immediate rewards than large, later ones. Since future oriented people are constantly planning for the future and delaying gratification in favor of future goals, a high degree of stress seems to dramatically influence their decision making abilities. It may also be that when stressed about the future, these individuals are less likely to accept future rewards and accept more immediate rewards.

❖ Evidently, future thinking in combination with stress has a direct interactive influence on delay discounting rates and thus, a bias toward small, immediate rewards or greater impulsivity. Overall, the study was consistent with the theories and prior research related to time perspective (e.g. Zimbardo & Boyd, 1999; Lempert et al., 2012).

❖ Individual appraisal of stress should be strongly considered in time perspective and decision making research as well as in cognitive and behavioral assessment.

❖ These findings highlight the importance of cognitive-behavioral stress management on decision making ability and can be further studied in behavioral and clinical conditions (i.e. impulse control disorders, problem gambling, addictive disorders, etc.). This research adds valuable information to the behavioral decision making literature and clinical implications relating to the cognitive and behavioral roles of stress and time perception.



REFERENCES

Cohen, S., Kamarck T., & Mermelstein R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 385-96.

Kirby, K. N., Petry, N. M., & Bickel, W. K. (1999). Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls. *Journal of Experimental Psychology: General*, 128(1), 78.

Lempert, K. M., Porcelli, A. J., Delgado, M. R., & Tricomi, E. (2012). Individual differences in delay discounting under acute stress: The role of trait perceived stress. *Frontiers in Psychology*, 3, 251.

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77(6), 1271.