



THE SELF CONTROL OF EXERCISE AND ORAL MEDICATION MANAGEMENT AMONG JAPANESE HEMODIALYSIS PATIENTS

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Introduction

Hemodialysis (HD) patients are required to control their own behavior with respect to diet, water intake, medication intake, exercise and so on. The delay discounting examination has become increasingly popular to investigate aspects of impulsivity in people with chronic health problems. People make decisions in their daily lives about their behavior which may lead to immediate pleasure, but may also bring about a delayed, unpleasant outcome. The choice of smaller, more immediate rewards over larger, more delayed ones is commonly labeled as being “*impulsive*,” whereas the converse of the choice of larger, more delayed rewards over smaller, more immediate ones is labeled as being “*self-controlled*.” However, previous research has not demonstrated the use of the delay discounting examination for HD patients. The purpose of this study is to examine the discounting of delayed hypothetical money and self control of exercise and oral medication intake among Japanese HD patients.

$$V = \frac{A}{1 + kD}$$

The hyperbolic delay model

NOTE for the hyperbolic delay model: *V* is the present, discounted value of an alternative, *A* is the amount of that alternative, and *D* is the delay in its receipt. The fitted parameter *k* reflects the impact of the delay on the value; if *k* is large, the present value is degraded more so by the delay, than if *k* is small.

Methods

PARTICIPANTS: 65 HD patients at a clinic in Japan

MEASUREMENTS

① Original Questionnaire:

A questionnaire was contained demographic data, daily exercise behavior and oral medication intake behavior.

② Discounting of delayed hypothetical money:

Participants were tested individually during the HD treatment using a questionnaire survey with a structured interview format. The instructions were given and participants were informed that would be choosing between hypothetical amounts of money available at a variety of delays. The experiment consisted of 30 conditions: the outcomes in the left column were always available “Now”. In the right column, the outcomes were available after 30 delays (for instance, 2 weeks, 3 weeks, 1 month, 3 months, 1 year, 5 years, 20 years, etc.). The outcomes in the left column were always in the amount of 8,000 Japanese yen (US\$ 80) and the delayed outcomes in the right column were always in the amount of 13,000 Japanese yen (US\$ 130).

GROUPING

① EXERCISE:

Well Managed Exercised Group(WEG)

:Participants who take regular exercise in daily life

Unmanaged Exercised Group(UEG)

:Participants who do not take regular exercise in daily life

② ADHERE TO ORAL MEDICATION:

Well Managed Oral Medication Group(WMG)

:Participants who adhere to the oral medication intake

Unmanaged Oral Medication Group(UMG)

:Participants who do not adhere to the oral medication intake

Results

Table1. Characteristics of the participants

Subjects	EXERCISE		ORAL MEDICATION	
	WEG	UEG	WMG	UMG
Male/Female	21/12	25/7	18/11	28/8
Age (Mean ± SD)	66.6 ± 15.0	68.5 ± 9.6	69.2 ± 12.5	66.2 ± 12.5

Thirty three participants adhere to the exercise behavior, and 32 participants did not take regular exercise in daily life. 29 participants adhere to the oral medication intake, and 36 participants did not adhere to the oral medication intake (Table 1). A significant difference was not shown between the WEG and UEG, also between the WMG and UMG. However, the score of *k* in the UEG is higher than the score in the WEG (Fig. 1), and the score of *k* is higher in the UMG than the score in the WMG (Fig. 2).

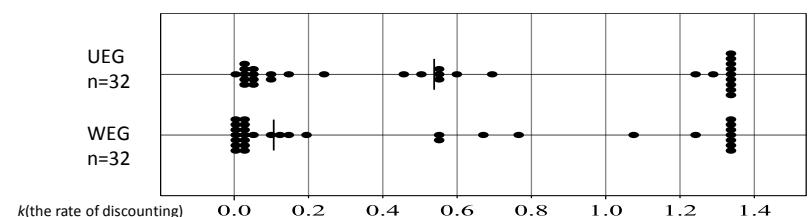


Figure 1. The impact of delay on value between WEG and UEG

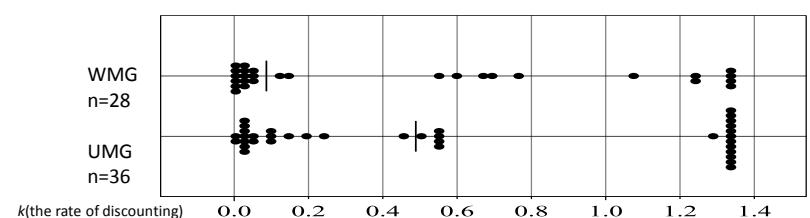


Figure 2. The impact of delay on value between WMG and UMG

Discussion & Conclusion

Hemodialysis (HD) patients need to control their behavior in the daily life, for instance medication intake and exercise. Effect of exercise and adhere to oral medication intake are accepted by long-term continuation. The score of *k* in the UEG and in the UMG were high. They may bring unpleasant outcomes for their health issues. This study revealed that discounting of delayed hypothetical money might have an effect on management of their oral medication intake. The patient education in accordance with the individual impulsively might be required to provide.

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