

Ajou University Hospital

노인의 삶의 질과 시간적 할인율과의 관련성

홍석주, 장기중, 노현웅, 노재성, 정영기, 임기영, 홍창형, 손상준 †

아주대학교 의과대학 정신건강의학교실

† Corresponding author

INTRODUCTION

- The "quality of life" concept is gaining importance in several fields of study including economics, sociology, social welfare studies, and medicine. The lengthening of life expectancy added importance to improving the quality of life for the elderly.
- There are many variables that affect elder generation's quality of life such as personal degree of subjective well-being, physical/psychological/social health, existence of a disease, area of residence, social status such as economic status and so on. Among those variables, the concept of temporal discounting has gained more attention recently. Temporal discounting means the ratio in which future compensation is converted to present compensation. This concept is built on the reasoning that most of the choices are intertemporal, and the future values are evaluated in a present basis.
- Therefore, the intertemporal comparison should be done by converting the future compensation to the present terms. This concept of temporal discounting is related with unwise decision making in health and economic status, thereby likely to lead to a decrease in the quality of life.
- This study aims to examine association of temporal discounting with well-being of Korean community-dwelling elderly.

METHOD

- The subjects of this research were 4,376 community-dwelling older persons without dementia. Each subject was administered the questionnaires regarding the socio-demographic characteristics, temporal discounting which was measured using standard questions in which participants were asked to choose between an immediate, smaller payment and a delayed, larger one.
- Outcome variable is Korean version of the WHO Five Well-Being Index (WHO-5). Statistical analyses including the Pearson's correlation test and logistic regression were performed in this study.
- Logistic regression was applied on WHO-5 Index's subscales in the same manner as well.

RESULTS

- At baseline, temporal discounting was negatively associated with WHO-5 in the Pearson's correlation test ($r=-0.04$, $p=0.006$). In a adjusted model for confounding variables, temporal discounting was negatively associated with WHO-5 (Odd ratio(95% C.I.)= $0.57(0.35-0.92)$, $p=0.021$).
- Temporal discounting rate's relations with WHO-5 Index's energy subscale (OR = 0.72, P = 0.074) found out to be statistically insignificant, but its relations with anxiety subscale (OR = 0.45, P <0.001,) and positive well-being subscale (OR = 0.56, P = 0.002) showed statistical significance.

Table 1. General characteristics of participants

	Total (N=4373)	High QOL (N=3636)	Low QOL (N=737)	P value†
Sex				
Male	1447(33.08%)	1197 (32.9%)	250 (33.9%)	0.599
Female	2926(66.92%)	2439 (67.1%)	487 (66.1%)	0.601
Age (year)	74.27±11.78	74.38±12.67	73.72±5.60	0.169
Education (year)	8.10±4.87	8.15±4.95	7.88±4.46	0.135
Past history of depression	266 (6.08%)	186 (5.10%)	80 (10.9%)	<0.001
TD	0.31±0.17	0.30±0.17	0.32±0.17	0.017

Data are presented as mean±SD.

†: p-values are calculated by independent t-test between High QOL group and Low QOL group.

QOL : Quality of life, TD : Temporal discounting

Table 2. Pearson's correlation of WHO-5 Well-being index with other covariates

Variables	Age	Education	TD	WHO-5
Age	-	-0.11***	0.08***	0.02
Education		-	-0.13***	0.03*
TD			-	-0.04**

*: $p<0.05$, **: $p<0.01$, ***: $P<0.001$

TD : Temporal discounting, WHO-5: Korean version of the WHO Five Well-Being Index

Table 3. Association between TD and WHO-5 scores†

Variable	Odd ratio	95% C.I.	P value
Sex	1.21	1.00 - 1.46	0.045
Age	1.02	1.002 - 1.03	0.028
Education	1.02	1.003 - 1.04	0.022
Past history of depression	2.27	1.716 - 2.99	<0.001
TD	0.57	0.353 - 0.92	0.021

†: Logistic regression analysis was conducted.

TD : Temporal discounting

CONCLUSION

- Elderly individual with a higher temporal discounting (which indicates impulsivity) may have a lower quality of life.
- Examining subscales of WHO-5 Well-Being Index, the research finds that the decrease in the quality of life was more closely associated with anxiety and positive well-being rather than the energy subscale.