

# Are you Healthy and Happy? Does Sport Participation Matter?

## A Study of the Inter-Relationships between Sport Participation, Perceived Health and Perceived Happiness at Six Life Stages

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### Abstract

The aim of this study was to explore the influence of sport participation during free time upon the perceived health and happiness of a large sample of Taiwanese citizens, using secondary data from the Taiwan Social Development Trend Survey conducted in 2004. Time spent in sport participation, perceived health and perceived data were analyzed using t-tests, correlations, one-way ANOVA and regression analysis. The results indicate that sport participation time (SPT), perceived health and perceived happiness are differently correlated for groups at six life stages. The relationship between sport participation time and happiness is stronger than that between SPT and health. In the six life stages, the relationship between sport participation and happiness is more positive for the 'young' and 'elderly' groups than for the 'middle-aged'.

**Keywords:** *sport participation, perceived health, perceived happiness*

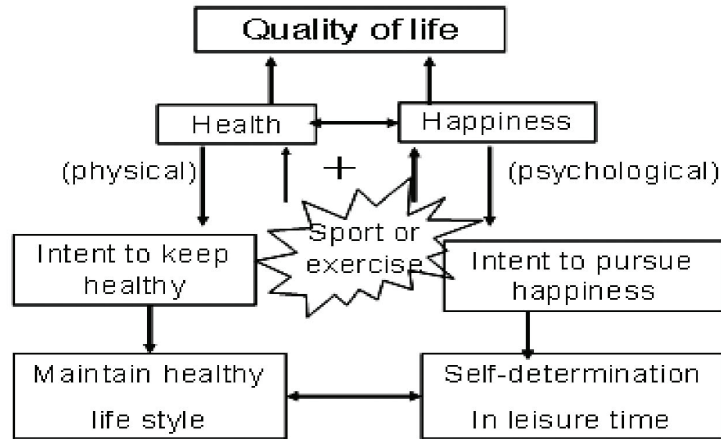
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### Introduction

This study seeks to examine the relationship between sport participation time (SPT), perceived health and perceived happiness among a sample drawn from a wider, na-

tional, study of over 14,000 Taiwanese citizens as part of the Taiwan Social Development Trend Survey conducted in 2004. Robinson & Godbey (1997), propose a quantitative way to assess the relationship of

Figure 1. Model of sport participation, perceived health and perceived happiness



energy consumption and psycho-physical gains in sport. The quantity of time and energy spent in sport can be measured reasonably accurately, although it cannot totally represent the 'benefits' of sport participation.

At the turn of the 21<sup>st</sup> Century, Taiwanese sport participation was increasing, reflecting rising living standards, GDP, the economic growth rate and rising personal income. Given that sport participation time increased in tandem with these economic indicators, was it the case that the quantity of time spent in sport was yielding effective benefits – real and/or perceived – in health and happiness (Verduin & McEwen, 1984; Driver, 1991; Calabiano, 1994)? And was it the case in Taiwan that, as Argyle (1997) observed, increases in (perceived) happiness influences perceived health? Hills and Argyle (1998) conducted a comparative study of the positive moods generated by four common leisure activities: sport/exercise, music, church-going and watching soap operas. They found that only sport/exercise led to a positive mood which pointed to a further increase in happiness. Cornelisse-Vermaat et al (2006) studied the structural inter-relationships between body-mass index, perceived health and happiness in a poll of 700 native Dutch citizens. Body-mass was found to affect happiness indirectly, via perceived health.

The purpose of this paper is to explore the influence of sport participation upon perceptions of health and happiness at different life stages. According to the World Health Organization (WHO), individuals' life quality is consisted of four factors, physical, psychological, social and environmental. Previous studies have shown that effective free-time management, clear and sensible goal-setting, efficiency in self-adaptation, ability to make immediate responses and good technique in making schedules, together lead to improved life quality.

The model presented in Figure 1 summarises our thinking based on the literature we have consulted.

Building on the model, the following three research questions guided the concept selection and data analysis in relation to a sample of Taiwanese residents drawn from a larger, national, data set:

1. Is there any difference in perceived happiness or health between those who participate in sport and those who do not participate in sport at all life stages?
2. What is the correlation between perceived health and perceived happiness at each life stage?
3. How does sport participation time (SPT) contribute to perceived happiness or health at different life stages?

## Method

### (1) Subjects

In 'The Survey of Social Development Trends (Time Use), Taiwan, Republic of China, 2004', the Directorate-General of Budget, Accounting and Statistics (DAGBAS) (2005) employed stratified random sampling, gathering data at village and family levels. The valid samples in the 2004 survey amounted to 524 villages and 11,000 families. Of the 14,017 citizens so canvassed, 5,102 people participated in sport and 8,915 people did not.

### (2) Survey method

The DGBAS adopted a time-use technique to scrutinize and categorize respondents' activities in a typical day, including: necessary routines (sleep, meals, face washing, showering, clothes-ironing, make-up, etc.); constraints (work, school, traffic, housework, shopping, etc); and pastimes (tutorial lessons, homework, television watching, newspaper and magazine reading, exercise, etc). Twenty-nine activity items in total were included. Respondents were requested to record time spent in each activity using a standard time unit of 15 minutes per every two days. The survey incorporated a questionnaire which focused on perceived health and happiness according to a four point scale for each item: 'Very unhealthy' (1), 'Unhealthy' (2) 'Healthy' (3) 'Very healthy' (4) (Perceived health); 'Very unhappy' (1) 'Un-

happy' (2) 'Happy' (3) 'Very happy' (4) (Perceived happiness).

### (3) Data analysis

#### Research question 1

The mean and standard deviations (SD) of sport participation time were calculated at six life stages: 15-24, 25-34, 35-44, 45-54, 55-64, 65 & over. T-tests were conducted to check any differences in perceived health and perceived happiness between respondents who did and did not participate in sport. Product-moment correlations between sport time, perceived health and perceived happiness were then conducted.

#### Research question 2

One-way ANOVA was used to examine whether there were any differences between sport time, perceived health and perceived happiness at six life stages.

#### Research question 3

Multiple regression was used to estimate the contribution made by sport participation time to perceived health and happiness at the six life stages.

## Results

### (1) Descriptive statistics

Respondents in the 25-34 age group were characterised by the shortest mean sport

Table 1. Sport participation time at various life stages

Age group	num	sport participation time (per day)			unit: minute	
		mean	SD	shortest	longest	%
15-24	338	52.41	51.377	7.5	315	4.9%
25-34	407	44.76	41.676	7.5	390	5.0%
35-44	737	52.00	44.522	7.5	322.5	10.5%
45-54	1044	65.36	46.332	7.5	330	18.7%
55-64	950	78.97	57.204	7.5	397.5	20.6%
65 & over	1626	90.29	58.327	7.5	405	40.3%
Total	5012	—	—	—	—	100%

participation time: 44.76 minutes. On average, those aged 65 displayed the longest sport participation time: 90.29 minutes. (See Table 1.)

The relationship between perceived health and perceived happiness for sport participants and nonparticipants at six life stages is shown in Table 2. In the case of *perceived happiness*, this is significantly higher for sport participants than for non-participants in the age groups 15-24, 35-44, 45-54 and 65 & over, In the case of *perceived health*, this is significantly

higher for sport participants than for non-participants in the age groups 25-34, 45-54 and 65 & over. However, there was no difference in the case of the 55-64 age group.

Table 3 shows the correlations among sport time, perceived health and perceived happiness. There are significant positive correlations between perceived health and happiness in six age groups. Sport time has a significant positive correlation with perceived health or perceived happiness only in the age groups of 65 and over and 25-34.

Table 2. Age group comparisons of sport time, perceived health and perceived happiness

Age	Variable	Group	N	Mean	SD	F value	p value
15-24	Health	Non-sport	1484	3.42	.58	.002	.963
		Sport	338	3.44	.58		
	Happiness	Non-sport	1484	3.07	.61	15.838	.000*
		Sport	338	3.19	.63		
25-34	Health	Non-sport	1854	3.33	.589	5.361	.021*
		Sport	407	3.40	.606		
	Happiness	Non-sport	1854	3.00	.604	1.092	.296
		Sport	407	3.10	.552		
35-44	Health	Non-sport	2260	3.21	.618	1.36	.243
		Sport	737	3.28	.605		
	Happiness	Non-sport	2260	2.92	.648	5.22	.022*
		Sport	737	3.02	.640		
45-54	Health	Non-sport	1731	3.09	.664	6.461	.011*
		Sport	1044	3.11	.687		
	Happiness	Non-sport	1731	2.90	.661	7.375	.007*
		Sport	1044	3.02	.651		
55-64	Health	Non-sport	810	2.92	.706	.000	.995
		Sport	950	2.97	.712		
	Happiness	Non-sport	810	2.89	.686	3.539	.060
		Sport	950	2.98	.689		
65 and over	Health	Non-sport	776	2.53	.854	39.630	.000*
		Sport	1626	2.72	.752		
	Happiness	Non-sport	776	2.78	.732	50.833	.000*
		Sport	1626	2.99	.671		

\*p<.05

**Table 3. Age group correlations between sport time, perceived health and perceived happiness**

		Health	Happiness	Sport time
15-24	Health	1		
	Happiness	.521*	1	
	Sport time	.033	.079	1
25-34	Health	1		
	Happiness	.415*	1	
	Sport time	.051*	.040	1
35-44	Health	1		
	Happiness	.434*	1	
	Sport time	-.044	-.011	1
45-54	Health	1		
	Happiness	.496*	1	
	Sport time	-.008	-.001	1
55-64	Health	1		
	Happiness	.536*	1	
	Sport time	.015	.048	1
65 and over	Health	1		
	Happiness	.522*	1	
	Sport time	.080*	.086*	1

\*p<.05

**(2) One-way ANOVA**

As shown in Table 4, sport time, perceived health and perceived happiness varied significantly between the six age groups. Those in older age groups (over 35) indicated that they spent more time in sport. The younger age groups perceived themselves to be healthier or happier than older age groups.

**(3) Multiple regression analysis**

In order to estimate how sport participation time contributes to perceived happiness

and perceived health, regression analyses were conducted:

1. When sport time is treated as the dependent variable and perceived health and happiness as the independent variables, the regression equation with estimated coefficients is:

$$\text{Sport time} = .082 \times \text{Happiness} + .112 \times \text{Health}, \quad R^2 = 0.1$$

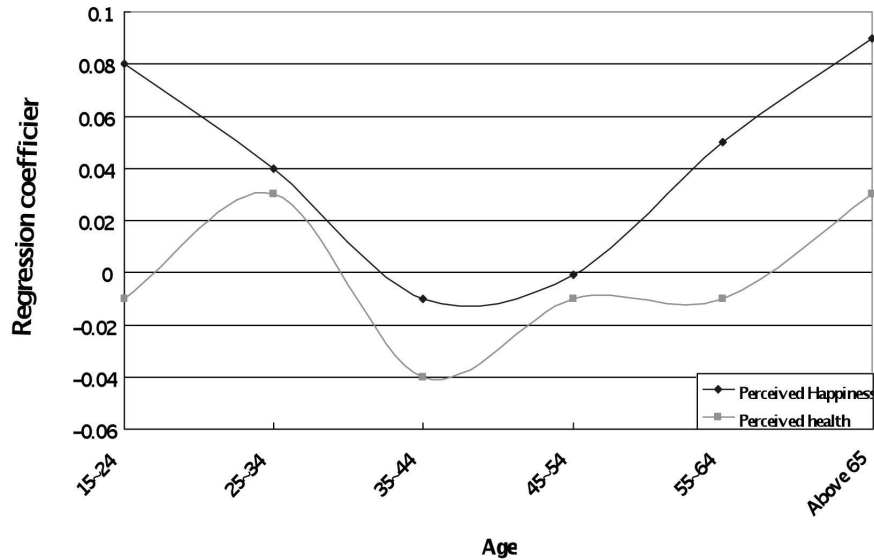
This shows that there are some other factors influencing sport time.

**Table 4. Comparison of means of sport time and perceived health and perceived happiness in different age groups**

	Age Groups						F Value	P Value
	15-24	25-34	35-44	45-54	55-64	65 and over		
Sport Time (1)	52.41	44.76	52.00	65.36	78.97	90.29	99.57	<.001*
Health (2)	3.44	3.40	3.28	3.11	2.97	2.72	136.39	<.001*
Happiness (2)	3.19	3.10	3.02	3.02	2.98	2.99	7.49	<.001*

\*p<.05 (1) minutes per day (2) 4 point scale

Figure 2. Contributions of sport participation time to perceived health and perceived happiness among the six age groups



2. When perceived health is treated as the dependent variable and sport time and perceived happiness are treated as the independent variables, the regression equation with estimated coefficients is:

$$\text{Health} = .494 \times \text{Happiness} + .085 \times \text{Sport time}, R^2 = 0.249.$$

3. When perceived happiness is treated as the dependent variable and sport time and perceived health as the independent variables, the regression equation with estimated coefficients is:

$$\text{Happiness} = .496 \times \text{Health} + .063 \times \text{Sport time}, R^2 = 0.245$$

Table 5 summarises the regression coefficients for perceived health and perceived happiness for the six age groups.

The regression analysis indicates that the contribution of sport time to perceived happiness is stronger than to perceived health. (See Figure 2.) Furthermore, the contribution of sport time to perceived happiness in the age groups 15-24 and 65 & above are higher than in the 'middle' age groups, with 35-44 being the lowest one.

### Conclusion

On the basis of the data analysis and discussion, the following conclusions are appropriate. Sport participation time, perceived health and perceived happiness vary for different age groups in Taiwan. After age 24, sport time increases. 'Younger' age groups perceive higher health and happiness. In the

Table 5. Contributions of perceived health and perceived happiness to sport participation time at the six life stages

Estimated regression coefficients	Age groups					
	15-24	25-34	35-44	45-54	55-64	65 and over
Perceived health	-0.01	0.03	-0.04	-0.01	-0.01	0.03
Perceived happiness	0.08	0.04	-0.01	-0.001	0.05	0.09

age groups of 15-24, 35-44, 45-54 and 65 & over, the perceived happiness for sport participants is significantly higher than for non-participants. Sport participation contributes more positive feelings of happiness than health in 'younger' age groups. In the age group of 65 and over, sport participants perceived themselves to be both happier and healthier than do non-participants. For the middle age group, the lower the perceived health, the more free time is used for sport participation.

In closing, we note the methodological limitations of the analysis, notably: (a) our dependence on secondary data (i.e.; on national-level data gathered for a different purpose) and hence on operational concepts not fully under our control – such as the definitions and measurement of sporting and non-sporting participation; (b) the lack of longitudinal data that would illuminate the importance of *generational* experiences. In other words, how do respondents' commitments to sporting participation, and their perceptions of health and happiness, *change over time* as they move through the age-cycle? Longitudinal data would shed light, for example, on one possible interpretation of the data in Table 1 which indicated that the 'oldest' group spent the most time in sporting participation. These data suggest that greater free time in retirement creates 'space' for sport participation, but it could hypothetically be the case that, even when 'younger', the pre-sedentary life-styles of this *generation* of Taiwanese citizens led them to be more active than the generations which followed.

## REFERENCES

- Argyle, M. (1997). Is happiness a cause of health? *Psychology & Health*, 12(6), 769 – 781.
- Cawley, J. (2004). An economic framework for understanding physical activity and eating behaviors. *American Journal of Preventive Medicine*. 27, 117-125.
- Caltabiano, M.L. (1994). Measuring the similarity among activities based on perceived stress: reduction benefit. *Leisure Studies*, 13(1), 17-31.
- Cornelisse-Vermaat, J. R., et al. (2006). Body mass index, perceived health, and happiness: Their determinants and structural relationships. *Social Indicators Research*, 79, 143-158.
- Crawford, D. W., & Godbey, G. C. (1987). Reconceptualizing barriers to family leisure. *Leisure Science*, 9, 119-127.
- Directorate-General of Budget, Accounting and Statistics (DGBAS), 2005. Taiwan Social Development Trend Survey conducted in 2004. Taiwan, Republic of China, 2004.
- Downward, P. (2007). Exploring the economic choice to participate in sport: Results from the 2002 General Household Survey, *International Review of Applied Economics*. Vol. 21, No 5, 633-653.
- Driver, B. L., Brown, P. J. & Peterson, G. L. (1991). *Benefits of Leisure*, Venture Publishing, INC. State College.
- Hills, P & Argyle, M. (1998). Positive moods derived from leisure and their relationship to happiness and personality. *Personality and Individual Differences*. 25(3), 523-535.
- Kuo, C. H (2000). *A study of leisure participation in Taiwan- the view of free time*. Taoyuan Gueishan. National Taiwan Sport University.
- Robinson, J.P. & Godbey, G. (1997). *Time for life: the Surprising Ways Americans Use Their Time*. University Park, PA: Pennsylvania State University.
- Verduin J. R., & McEwen, D. N. (1984). *Adults and their leisure: The need for life-long learning*. Springfield, IL: Charles C. Thomas.

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