

## Take Home Lessons from Today 10-5-23

1. With just a little statistics training and understanding of definitions, one can interpret even the latest peer reviewed research. Important terms to learn are Null Hypothesis, Correlation Coefficient (R), The Regression Coefficient ( $\beta$ ) and the P Value. Taken together, these provide a comprehensive picture of how well different parameters, i.e. Physical Activity and Happiness or Well-Being, are correlated.
2. “The Relationships between Physical Activity and Life Satisfaction and Happiness among Young, Middle-Aged, and Older Adults” is an article that sought to investigate how physical activity relates to happiness and well-being in young, middle-aged, and older adults.
3. Participants were divided into young, middle-aged, and older adult groups based on age, and physical activity was categorized as high, moderate, and low. Other demographic information was also recorded including education level, marital status and monthly income.
4. After controlling for the other demographic characteristics, participants with high and moderate activity levels had significantly higher life satisfaction and happiness than those with a low activity level across the total population and the three age groups.
5. . Physical activity was significantly related to life satisfaction and happiness in young, middle-aged, and older adults.
6. In addition, life satisfaction and happiness increased with increasing age.
7. The results support the promotion of physical activity and demonstrate that individuals like YOU can improve happiness and well-being by prioritizing physical activity.

# The Relationships between Physical Activity and Life Satisfaction and Happiness among Young, Middle-Aged, and Older Adults

Int. J. Environ. Res. Public Health 2020, 17, 4817; doi:10.3390/ijerph17134817

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**Table 1.** Demographic characteristics of adults in the three age groups.

	Total (n = 2345)	Young Adults (n = 977)	Middle-Aged Adults (n = 725)	Older Adults (n = 643)
Age, mean (SD)	51.06 (17.01)	34.60 (6.17)	53.15 (5.34)	73.71 (5.94)
Gender				
Male	754 (32.15)	317 (32.45)	182 (25.10)	255 (39.66)
Female	1591 (67.85)	660 (67.55)	543 (74.90)	388 (60.34)
Education level				
Elementary school	337 (14.37)	4 (0.41)	46 (6.34)	287 (44.63)
Junior high school	164 (6.99)	22 (2.25)	65 (8.97)	77 (11.98)
Senior high school	496 (21.15)	140 (14.33)	228 (31.45)	128 (19.91)
Undergraduate	1127 (48.06)	671 (68.68)	316 (43.59)	140 (21.77)
Postgraduate	221 (9.42)	140 (14.33)	70 (9.66)	11 (1.71)
Marital status				
Single	589 (25.12)	460 (47.08)	107 (14.76)	22 (3.42)
Married	1566 (66.78)	491 (50.26)	571 (78.76)	504 (78.38)
Other	190 (8.10)	26 (2.66)	47 (6.48)	117 (18.20)
Living alone				
No	2028 (86.48)	857 (87.72)	661 (91.17)	510 (79.32)
Yes	317 (13.52)	120 (12.28)	64 (8.83)	133 (20.62)
Physical activity level				
Low-active	1003 (42.77)	497 (50.87)	330 (45.52)	176 (27.37)
Moderate-active	513 (21.88)	175 (17.91)	154 (21.24)	184 (28.62)
High-active	829 (35.35)	305 (31.22)	241 (33.24)	283 (44.01)

SD, standard deviation.

**Table 2.** Summary of regression analyses: demographic characteristics, physical activity, and life satisfaction.

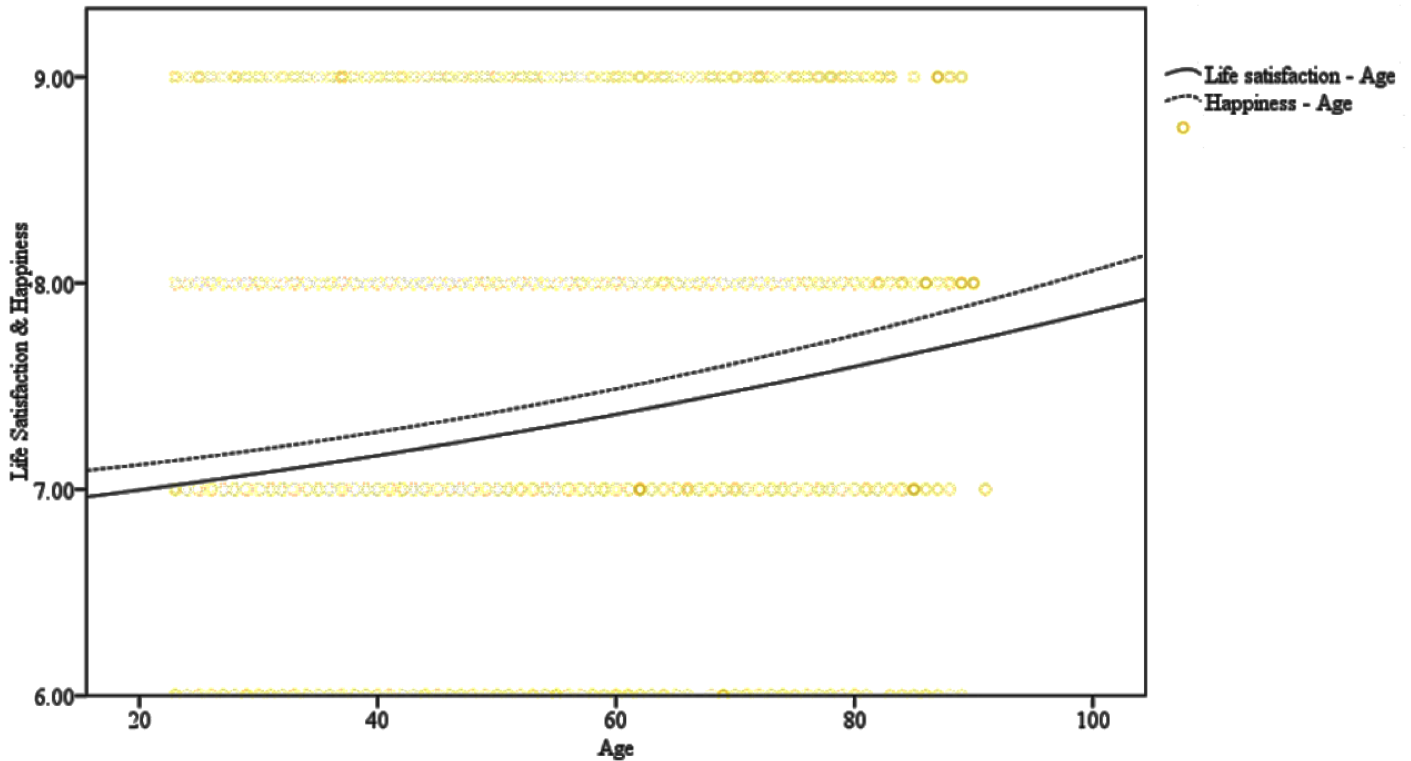
	Total (n = 2345)		Young Adults (n = 977)		Middle-Aged Adults (n = 725)		Older Adults (n = 643)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	-0.23	-0.22	-0.54	-0.38	1.00	1.06	0.14	0.16
Age square (Age <sup>2</sup> )	0.39 *	0.34 *	0.51	0.35	-0.94	-1.01	-0.17	-0.17
Gender								
Male	REF	REF	REF	REF	REF	REF	REF	REF
Female	0.02	0.03	-0.02	-0.01	0.04	0.06	0.03	0.04
Education level								
Elementary school	REF	REF	REF	REF	REF	REF	REF	REF
Junior high school	0.03	0.03	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>	0.08	0.07
Senior high school	0.02	0.02	-0.03	-0.05	0.01	0.02	0.07	0.05
Undergraduate	0.14 **	0.14 **	0.02	-0.00	0.19 **	0.20 **	0.14 **	0.12 *
Postgraduate	0.10 **	0.09 **	0.04	0.01	0.12 *	0.12 *	- <sup>b</sup>	- <sup>b</sup>
Marital status								
Single or Other	REF	REF	REF	REF	REF	REF	REF	REF
Married	0.12 ***	0.13 ***	0.12 **	0.13 **	0.17 ***	0.17 ***	0.05	0.06
Living alone								
No	REF	REF	REF	REF	REF	REF	REF	REF
Yes	-0.03	-0.03	-0.02	-0.01	0.02	0.02	-0.11 *	-0.10 *
Monthly income	0.05	0.05	0.04	0.04	0.13 *	0.13 **	-0.08	-0.09
Time of vigorous activity		0.02		-0.04		0.03		0.06
Time of moderate activity		-0.04		-0.06		-0.01		-0.04
Time of walking		-0.02		-0.04		-0.01		-0.02
Physical activity level								
Low-active		REF		REF		REF		REF
Moderate-active		0.12 ***		0.11 **		0.11 **		0.14 **
High-active		0.19 ***		0.23 ***		0.17 **		0.18 **

REF, reference. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . <sup>a</sup>: The reference education group for the young and middle-aged adult groups was elementary school and junior high school. <sup>b</sup>: The highest education level in the older adults group was the combination of undergraduate and postgraduate levels.

**Table 3.** Summary of regression analyses: demographic characteristics, physical activity, and happiness.

	Total (n = 2345)		Young Adults (n = 977)		Middle-Aged Adults (n = 725)		Older Adults (n = 643)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	-0.16	-0.16	-0.74	-0.62	0.77	1.01	1.30	1.28
Age square (Age <sup>2</sup> )	0.30 *	0.26 *	0.69	0.57	-0.65	-0.90	-1.36	-1.34
Gender								
Male	REF	REF	REF	REF	REF	REF	REF	REF
Female	0.02	0.04	0.00	0.01	0.04	0.06	0.03	0.04
Education level								
Elementary school	REF	REF	REF	REF	REF	REF	REF	REF
Junior high school	-0.00	-0.00	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>	0.05	0.05
Senior high school	0.02	0.02	-0.06	-0.07	0.08	0.09	0.05	0.04
Undergraduate	0.10 *	0.10 **	-0.03	-0.04	0.21 **	0.21 **	0.11 *	0.10 *
Postgraduate	0.05	0.05	-0.05	-0.07	0.14 **	0.15 **	- <sup>b</sup>	- <sup>b</sup>
Marital status								
Single or Other	REF	REF	REF	REF	REF	REF	REF	REF
Married	0.08 **	0.09 ***	0.09 *	0.10 *	0.13 **	0.13 **	0.02	0.02
Living alone								
No	REF	REF	REF	REF	REF	REF	REF	REF
Yes	-0.04	-0.03	-0.05	-0.05	0.02	0.02	-0.09	-0.08
Monthly income	0.02	0.02	0.00	-0.00	0.11 **	0.10 *	-0.08	-0.08
Time of vigorous activity		-0.01		-0.06		0.01		0.01
Time of moderate activity		-0.02		-0.02		0.01		-0.06
Time of walking		-0.03		-0.02		-0.03		0.00
Physical activity level								
Low-active		REF		REF		REF		REF
Moderate-active		0.09 ***		0.08 *		0.07 *		0.11 *
High-active		0.19 ***		0.16 **		0.19 ***		0.21 **

REF, reference. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . <sup>a</sup>: The reference education group for the young and middle-aged adult groups was elementary school and junior high school. <sup>b</sup>: The highest education level in the older adults group was the combination of undergraduate and postgraduate levels.



**Figure 1.** Estimated age patterns for life satisfaction in adults based on the three physical activity levels.