

Predictors of Adolescents' Subjective Happiness Based on Roy's Adaptation Model: A Longitudinal Study



Jeong-Eun Yang¹ and SeolHwa Moon^{2,*}

¹Department of Nursing, Jesus University, #383 Seowonro Wansan-gu, Jeonju, Korea

²Department of Nursing, Hoseo University, #20, Hoseo-ro 79beon-gil, Baebang-eup, Asan, Korea

© 2024 The Author(s). Published by Bentham Open.

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



*Address correspondence to this author at the Department of Nursing, Hoseo University, #20, Hoseo-ro 79beon-gil, Baebang-eup, Asan, Korea; Tel: (+82) 41-540-9533; Fax: (+82) 41-540-5114; E-mail: seolhwa@hoseo.edu

Published: ?? ??, 2024

Cite as: Yang J, Moon S. Predictors of Adolescents' Subjective Happiness Based on Roy's Adaptation Model: A Longitudinal Study. Open Public Health J, 2024; 17: e18749445352096. <http://dx.doi.org/10.2174/0118749445352096241122113615>



Send Orders for Reprints to reprints@benthamscience.net

Table S1. Change of subjective happiness during 3years (N=324).

| Subjective happiness | | Baseline (2018) | After 3years (2021) | t (p) |
|----------------------|-------------------|-----------------|---------------------|--------------|
| | | M ± SD or n (%) | M ± SD or n (%) | |
| Total score | | 25.10±4.00 | 19.56±3.49 | 23.05(<.001) |
| Sub-domain | Perceived health | 4.24±0.86 | 3.92±0.91 | 5.40(<.001) |
| | School life | 4.15±0.92 | 3.85±0.99 | 4.58(<.001) |
| | Life satisfaction | 4.22±0.87 | 3.89±0.88 | 5.63(<.001) |
| | Belonging | 4.00±1.16 | 3.92±0.94 | 1.14(.257) |
| | Getting along | 4.29±0.86 | 4.02±0.86 | 4.76(<.001) |
| | Loneliness | 4.19±1.15 | 3.85±1.09 | 4.14(<.001) |

Note: M±SD = Mean ± Standard deviation.

Table S2. Differences according to subjective happiness of categorical variables.

| Characteristics | Subjective Happiness in 2018 | | Subjective Happiness in 2021 | |
|-----------------------|------------------------------|------------|------------------------------|------------|
| | M ± SD | t or F(p) | M ± SD | t or F(p) |
| Sex | - | - | - | - |
| female | 24.63±4.13 | 2.21(.028) | 19.91±3.43 | 1.74(.084) |
| Male | 25.60±3.79 | - | 19.24±3.53 | - |
| Grade | - | - | - | - |
| 1 st grade | 25.51±3.71 | 0.93(.397) | 20.09±3.21 | 0.69(.185) |

| Characteristics | Subjective Happiness in 2018 | | Subjective Happiness in 2021 | |
|-----------------------|------------------------------|--------------|------------------------------|------------|
| | M ± SD | t or F(p) | M ± SD | t or F(p) |
| 2 nd grade | 25.04±3.87 | - | 19.36±3.43 | - |
| 3 rd grade | 24.77±4.37 | - | 19.28±3.78 | - |
| Domestic violence | - | - | - | - |
| Physical abuse | - | - | - | - |
| Yes | 24.08±3.80 | 1.62(.106) | 19.54±3.45 | 0.09(.932) |
| No | 25.21±4.00 | - | 19.49±3.88 | - |
| Missing | - | - | - | - |
| School credits | - | - | - | - |
| Good | 26.26±3.28 | 5.56(<.001) | 19.99±3.50 | 2.25(.025) |
| Bad | 23.89±4.32 | - | 19.12±3.44 | - |
| Perceived health | - | - | - | - |
| Good | 25.95±3.46 | 10.11(<.001) | 19.85±3.42 | 3.40(.001) |
| Poor | 20.62±3.64 | - | 18.08±3.54 | - |

Table S3. Correlation according to subjective happiness in 2018 of continuous variables (N=324).

| Characteristics | 1 r(p) | 2 r(p) | 3 r(p) | 4 r(p) | 5 r(p) | 6 r(p) | 7 r(p) | 8 r(p) | 9 r(p) | 10 r(p) | 11 r(p) | 12 r(p) | 13 r(p) | 14 r(p) |
|------------------------------|-----------------|------------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|------------|
| Family income | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| School violence | .02 (.691) | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Verbal abuse | 0.07 (.189) | 0.21 (<.001) | 1 | - | - | - | - | - | - | - | - | - | - | - |
| Neglect | -0.11 (.047) | -.04 (.511) | 0.12 (.031) | 1 | - | - | - | - | - | - | - | - | - | - |
| School-related stress | 0.09 (.120) | .23 (<.001) | .25 (<.001) | .06 (.314) | 1 | - | - | - | - | - | - | - | - | - |
| Psychosocial environment | 0.07 (.239) | -0.10 (.069) | -0.15 (.008) | -0.12 (.027) | -0.20 (<.001) | 1 | - | - | - | - | - | - | - | - |
| School connectedness | 0.03 (.239) | -0.10 (.068) | -0.07 (.203) | 0.01 (.797) | -0.15 (.008) | 0.38 (<.001) | 1 | - | - | - | - | - | - | - |
| Aggressive behavior | 0.03 (.609) | 0.31 (<.001) | 0.36 (<.001) | 0.06 (.284) | 0.23 (<.001) | -0.09 (.119) | 0.09 (.121) | 1 | - | - | - | - | - | - |
| Withdrawal | -0.01 (.826) | 0.17 (.002) | 0.12 (.033) | 0.05 (.413) | 0.32 (<.001) | -0.19 (.001) | -0.02 (.768) | 0.37 (<.001) | 1 | - | - | - | - | - |
| Depression(&anxiety) | 0.03 (.636) | 0.31 (<.001) | 0.29 (<.001) | 0.02 (.696) | 0.41 (<.001) | -0.14 (.012) | 0.02 (.677) | 0.62 (<.001) | 0.67 (<.001) | 1 | - | - | - | - |
| Self-esteem | -0.01 (.932) | 0.01 (.805) | -0.01 (.919) | 0.04 (.503) | -0.11 (.058) | 0.37 (<.001) | 0.28 (<.001) | 0.04 (.473) | -0.00 (.963) | -0.04 (.523) | 1 | - | - | - |
| Number of friends | 0.01 (.918) | -0.10 (.088) | -0.09 (.104) | 0.05 (.363) | -0.04 (.427) | 0.09 (.110) | 0.10 (.074) | 0.05 (.330) | -0.02 (.724) | -0.03 (.586) | 0.12 (.039) | 1 | - | - |
| Peer attachment | 0.08 (.152) | 0.01 (.898) | 0.02 (.698) | 0.03 (.659) | -0.12 (.036) | 0.29 (<.001) | 0.22 (<.001) | -0.02 (.683) | -0.22 (<.001) | -0.05 (.376) | 0.26 (<.001) | 0.15 (.007) | 1 | - |
| Subjective happiness in 2018 | 0.05 (.402) | -0.19 (<.001) | -0.15 (.006) | 0.02 (.732) | -0.51 (<.001) | 0.39 (<.001) | 0.29 (<.001) | -0.16 (.003) | -0.41 (<.001) | -0.40 (<.001) | 0.35 (<.001) | 0.25 (<.001) | 0.41 (<.001) | 1 |

Table S4. Correlation according to subjective happiness in 2021 of continuous variables (N=324).

| Characteristics | 1 r(p) | 2 r(p) | 3 r(p) | 4 r(p) | 5 r(p) | 6 r(p) | 7 r(p) | 8 r(p) | 9 r(p) | 10 r(p) | 11 r(p) | 12 r(p) | 13 r(p) | 14 r(p) |
|------------------------------|-----------------|--------------------|--------------------|-----------------|---------------------|---------------------|--------------------|--------------------|----------------------|----------------------|--------------------|----------------|---------------------|------------|
| Family income | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| School violence | .02 (.691) | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Verbal abuse | .07 (.189) | .21 ($<.001$) | 1 | - | - | - | - | - | - | - | - | - | - | - |
| Neglect | -.11 (.047) | -.04 (.511) | .12 (.031) | 1 | - | - | - | - | - | - | - | - | - | - |
| School-related stress | .09 (.120) | .23 ($<.001$) | .25 ($<.001$) | .06 (.314) | 1 | - | - | - | - | - | - | - | - | - |
| Psychosocial environment | 0.07 (.239) | -0.10 (.069) | -.15 (.008) | -.12 (.027) | -.20 ($<.001$) | 1 | - | - | - | - | - | - | - | - |
| School connectedness | 0.07 (.120) | -.10 (.068) | -.07 (.203) | .01 (.797) | -.15 (.008) | .38 ($<.001$) | 1 | - | - | - | - | - | - | - |
| Aggressive behavior | .03 (.609) | .31 ($<.001$) | .36 ($<.001$) | .06 (.284) | .23 ($<.001$) | -.09 (.119) | .09 (.121) | 1 | - | - | - | - | - | - |
| Withdrawal | -0.01 (.826) | .17 (.002) | .12 (.033) | .05 (.413) | .32 ($<.001$) | -.19 (.001) | -.02 (.768) | .37 ($<.001$) | 1 | - | - | - | - | - |
| Depression(&anxiety) | 0.03 (.636) | .31 ($<.001$) | .29 ($<.001$) | .02 (.70) | .41 ($<.001$) | -.14 (.012) | .02 (.677) | .62 ($<.001$) | .670 ($<.001$) | 1 | - | - | - | - |
| Self-esteem | -0.01 (.932) | .01 (.805) | .01 (.919) | .04 (.503) | -.11 (.058) | .37 ($<.001$) | .28 ($<.001$) | .04 (.472) | -.00 (.963) | -.04 (.523) | 1 | - | - | - |
| Number of friends | 0.01 (.918) | -0.10 (.088) | -0.09 (.104) | 0.05 (.363) | -0.04 (.427) | 0.09 (.110) | 0.10 (.074) | 0.05 (.330) | -0.02 (.724) | -0.03 (.586) | 0.12 (.039) | - | - | - |
| Peer attachment | 0.08 (.152) | 0.07 (.898) | 0.02 (.698) | .03 (.659) | -.12 (.036) | .29 ($<.001$) | .22 ($<.001$) | -.02 (.683) | -.22 ($<.001$) | -.05 (.376) | .26 ($<.001$) | 0.15 (.007) | 1 | - |
| Subjective happiness in 2021 | 0.09 (.101) | -0.12 (.028) | -0.04 (.523) | -0.13 (.024) | -0.15 (.006) | 0.28 ($<.001$) | 0.15 (.005) | -0.07 (.241) | -0.20 ($<.001$) | -0.24 ($<.001$) | 0.14 (.010) | 0.14 (.012) | 0.25 ($<.001$) | - |

Table S5. Associated Factors of subjective well-being (N=324).

| - | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|--------------------------|---|---------|--|---------|--|---------|--|---------|---|---------|---|------|
| Variables | β | p | β | p | β | p | β | p | β | p | β | p |
| (Constant) | - | $<.001$ | - | $<.001$ | - | $<.001$ | - | $<.001$ | - | $<.001$ | - | .002 |
| School violence | -.07 | .128 | -.03 | .471 | -.02 | .591 | - | - | - | - | - | - |
| Verbal abuse | .03 | .509 | .04 | .451 | .01 | .732 | - | - | - | - | - | - |
| Neglect | - | - | - | - | - | - | -.09 | .098 | -.09 | .087 | -.11 | .036 |
| School-related stress | -.40 | $<.001$ | -.32 | $<.001$ | -.27 | $<.001$ | -.07 | .230 | .01 | .908 | .03 | .682 |
| Psychosocial environment | .24 | $<.001$ | .20 | $<.001$ | .10 | .021 | .22 | $<.001$ | .19 | .002 | .15 | .017 |
| School credits | -.14 | .004 | -.14 | .004 | -.10 | .015 | -.04 | .444 | -.06 | .309 | -.05 | .431 |
| School connectedness | .11 | .024 | .14 | .003 | .08 | .070 | .04 | .534 | .07 | .256 | .03 | .566 |
| Aggressive behavior | - | - | .09 | .102 | .05 | .278 | - | - | - | - | - | - |
| Withdrawal | - | - | -.14 | .018 | -.09 | .078 | - | - | -.04 | .970 | .05 | .481 |
| depression | - | - | -.20 | .006 | -.17 | .007 | - | - | -.19 | .013 | -.21 | .005 |
| Perceived health | - | - | - | - | -.23 | $<.001$ | - | - | - | - | -.06 | .330 |
| Self-esteem | - | - | - | - | .14 | .001 | - | - | - | - | .00 | .994 |
| Number of friends | - | - | - | - | .15 | $<.001$ | - | - | - | - | .07 | .168 |
| Peer attachment | - | - | - | - | .18 | $<.001$ | - | - | - | - | .17 | .003 |
| | Adj. R ² =.37, F=21.50, p<.001 | | Adj. R ² =.42, ΔR^2 =.06, F=20.35, p<.001 | | Adj. R ² =.57, ΔR^2 =.15, F=27.31, p<.001 | | Adj. R ² =.09, F=5.03, p<.001 | | Adj. R ² =.12, ΔR^2 =.03, F=5.16, p<.001 | | Adj. R ² =.15, ΔR^2 =.04, F=4.88, p<.001 | |

Note: Covariate all model: sex, grade, family income.

Model 1~3: dependent variable: 13 year subjective happiness.

Model 4~6: dependent variable: 16 year subjective happiness.