# Testing subjective well-being predictors for adolescents

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**Abstract.** The aim of this study is to test the predictive roles of Turkish-speaking adolescents' health promotion behaviours and resilience levels on their subjective well-being. We also test the mediating role of adolescents' resilience. A total of 502 (228 male, 274 female) Turkish-speaking adolescents who aged between 14 and 18 participated in this study in the northern part of Cyprus. Data were collected by using the Sociodemographic Information Form, the Adolescent Health Promotion Scale, the Child and Youth Psychological Resilience Measure-12, and the Adolescent Subjective Well-Being Scale. To test two competing structures (health promotion behaviours and resilience) for explaining the subjective well-being of adolescents, covariance-based structural equation modeling was applied using SPSS AMOS 24. The results showed that adolescents' health promotion behaviours and resilience significantly predicted their subjective well-being. In other words, both adolescents' health promotion behaviours and resilience are important triggers for subjective well-being. Also, resilience partly mediates the relationship between health promotion behaviours and subjective well-being. The findings suggest that in order to promote the subjective well-being of adolescents, health promotion behaviours and resilience are essential.

## 1 Introduction

### 1.1 Background

Adolescence is an important developmental stage in the life span development for well-being [1, 2, 3, 4]. Additionally, recent studies estimated the COVID-19 period negatively impact on adolescents' well-being [5, 6, 7, 8]. It is important to understand whether protective factors such as, resilience and health promotion behaviours, have contributed to well-being in adolescence during the COVID-19 pandemic. Despite, existing evidence that health promotion behaviours are positively related to subjective well-being of adolescents [9, 10, 11, 12], here remains limited robust empirical evidence on how the relationship

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between health promotion behaviours and their subjective well-being mediated by resilience particularly in adolescent population. Accordingly, in the light of literature, it is significant to know what factors predict the subjective well-being of adolescence in a pandemic condition.

Subjective well-being can be defined as the balance of an individuals' positive and negative affects, which is the emotional dimension as well as subjective well-being and their life satisfaction [13]. Researches have indicated that health promotion behaviours such as; social support [14, 15], life appreciation [16, 17, 18], health behaviours [19, 20, 21, 22], stress management [23], nutritional behaviours [24], exercises behaviours [25, 26, 27] are beneficial for subjective well-being of adolescence. Also, findings confirmed that increased resilience is a unique predictor of subjective well-being during a pandemic crisis [28]. [29], [30] and [31] stated beginning definitions of resilience that is a process and a concept of bending and rebounding to overcome difficulty without suffering detrimental effects. for Turkish-speaking adolescents the concept of the resilience during and post COVID-19 pandemic process is minimal [32, 33, 34]. To address the limitations of literature, this study tried to investigate predictor roles of subjective well-being and mediator roles of resilience in the relationship between health promotion behaviours and subjective well-being of Turkish-speaking adolescents.

### 1.2 Present Study and Hypotheses

This present study carried out in northern part of Cyprus (Cyprus is the third largest island in the Mediterranean.). As of March 10, 2020 activities related to education and training in both private and public schools were put on hold for COVID-19. On June 1, 2020, private schools resumed instruction; however, public schools did not begin training until a later date. In this respect, we need the data for Turkish-speaking population to understand how this global crisis has affected them. In addition, [35] and [36], indicated that compared to adults, the COVID-19 pandemic may continue long term influences on adolescents. Therefore, this present study was carried out with adolescents. Moreover, previous research has primarily examined and found that resilience is positively and significantly associated with subjective well-being. Also, the health promotion behaviours of adolescents have positively impacted on their resilience. Building on previous research, the following hypotheses tested using a model with, covariance-based Structural Equation Modeling Turkish-speaking adolescents. Accordingly, three hypotheses were generated as follows:

Hypothesis1 ($H_1$): Health promotion behaviours of adolescents will be positively related to subjective well-being.

Hypothesis 2 ($H_2$): Health promotion behaviours of adolescents will be positively related to resilience.

Hypothesis 3 ($H_3$): The relationship between health promotion behaviours and subjective well-being will be mediated by resilience.

## 2 Method

This study is a correlational model [37]. The covariance-based structural equation was used to explain the relationship between complex structures (see Figure 1), [38]. The figure 1 shows the proposed model of subjective well-being for adolescents.

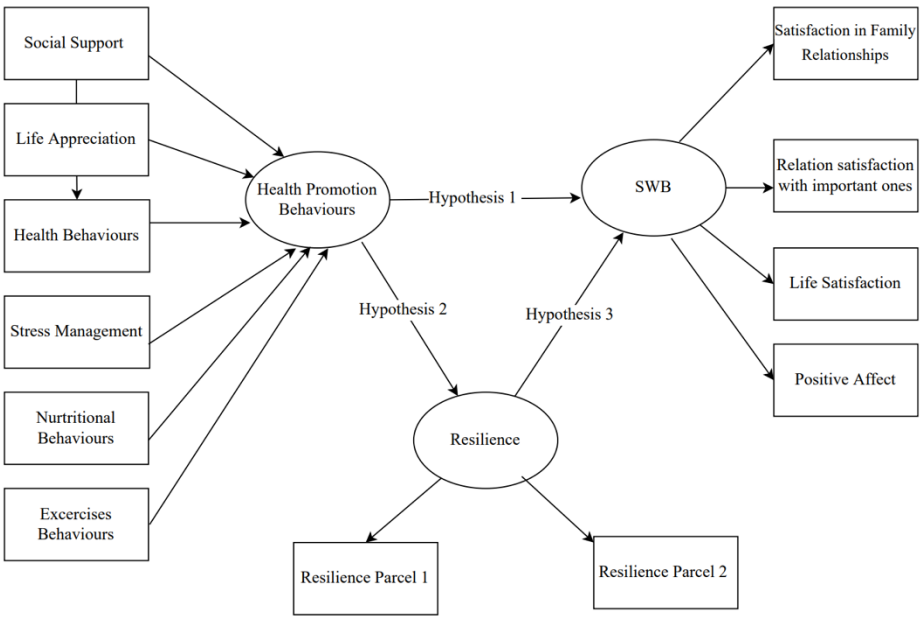


**Fig. 1.** Proposed Model of Subjective Well-being for Adolescents.
*Notes. P1= Parcel 1, P2=Parcel 2, SWB=Subjective well-being, health promotion behaviours as predictor, subjective well-being as depended variable, resilience as moderator.*

## 2.1 Participants and Recruitment

Data were collected from adolescents at two state high schools of northern part of Cyprus. We used convenience sampling technique to recruit participants [39]. Inclusion criteria of the study; (1.) Turkish-speaking adolescence, (2.) adolescence volunteering, and (3.) having parent permission to participate. The sample size considered by [40] recommends. Accordingly, the 502 students who met the inclusion criteria were determined. The final sample identified as female (54.6%) and as male (45.4). Their age varied between 14 and 17 years. The sample was divided as 127 (25.3 %) $9^{th}$ grade students, 117 (23.3%) $10^{th}$ grade students, 136 (27.1%) $11^{th}$ grade students, and 122 (24.3%) $12^{th}$ grade students. The majority of participants are Turkish Cypriot (75.9%). Eighty percent of participants reported being in the middle socio-economic level. The sample dominantly identified with don't have physical health problems (93.8%). Additionally, 73.1 percent of participants were member of nuclear family. Only 47 (9.4%) adolescents applied counselling services during COVID-19. Approximately seventy five percent of participants identified that their parents as their first social supporter during COVID-19 pandemic. Lastly, 304 participants didn't have COVID-19 symptoms. Table 1 displays detailed information about participants.

**Table 1.** Demographical information of participants

| Variables | | N | % |
|---|---|---|---|
| Gender | Female | 274 | 54.6 |
| | Male | 228 | 45.4 |
| Categories for grades | $9^{th}$ | 127 | 25.3 |
| | $10^{th}$ | 117 | 23.3 |
| | $11^{th}$ | 136 | 27.1 |
| | $12^{th}$ | 122 | 24.3 |
| Ethnic Group | Turkish Cypriot | 381 | 75.9 |
| | Turks | 100 | 19.9 |
| | Turkmens | 21 | 4.2 |
| Structure of Family | Single Parent Family | 56 | 11.2 |
| | Nuclear Family | 367 | 73.1 |
| | Single Parent Family | 26 | 5.2 |
| | Extended Family | 53 | 10.6 |
| Socio-economic level | Low | 39 | 7.8 |
| | Middle | 404 | 80.5 |
| | High | 59 | 11.8 |
| Physical Health Problems | Yes | 31 | 6.2 |
| | No | 471 | 93.8 |
| Receiving Counselling Support | Yes | 47 | 9.4 |
| | No | 455 | 90.6 |
| Social Supporter | Parent (Mother-Father) | 377 | 75.1 |
| | Significant others (such as; peers, teachers) | 125 | 24.9 |
| COVID-19 disease symptoms | Yes | 198 | 39.4 |
| | No | 304 | 60.6 |

## 2.2 Materials

### *2.2.1 Health promotion behaviours*

Adolescents' health behaviours measured by the Turkish version [41] of the Adolescent Health Promotion Scale (AHP) [42], The AHP is a self-report, 5-Likert type scale (1 =Never, 5=Always). The AHP measures unhealth lifestyles of adolescents and consists six factor structure with forty items. The subscales are social support [SS, with 7 items (e.g. "Concern about and keep in touch with others")], Life appreciation [LA, with 8 items (e.g. "Make an effort to believe that my life has purpose")], health-responsibility [HR, with 9 items (e.g. "Discuss my health concerns with health personnel" )], Stress-management [SM, with 6 items (e.g. "Use adequate responses to unreasonable issues" )], nutritional behaviours [NB, with 6 items (e.g. "Make an effort to select foods without too much oil" )],

and exercise behaviours [EB, with 4 items (e.g. "Participate in physical fitness class at school weekly" )]. A higher degree of AHP indicated higher social support, life-appreciation, health-responsibilities, able to stress management, attend to nutritional behaviours, and consider exercise behaviours. [42], found internal consistency coefficient of social-support was $\alpha$=.83, for Life-appreciation was $\alpha$=.87, for health-responsibility was $\alpha$=.78, for stress-management was $\alpha$=.77, nutritional behaviour was $\alpha$=.75, and exercise behaviour was $\alpha$=.74. In the Turkish version of AHP [41]found Cronbach's alpha of total scale was $\alpha$=.86, in the current study the Cronbach's alpha of total scale was $\alpha$=.88.

### *2.2.2. Resilience*

Resilience level of participants was measured by Turkish version [43] of the Child and Youth Psychological Resilience Measure (CYRM) brief form-12 [44]. The CYRM consists of one factor and twelve items. The sample items are '' My friends stand by me during difficult times.'', and '' I feel safe when I am with my caregiver(s).'' The CYRM is a Likert-type measure and scored from 1= does not describe me at all, to 5=describes me a lot. Higher scores indicate higher levels of resilience of participants. In the English version of CYRM [44] stated that Cronbach's Alpha was $\alpha$=.84. In [43] study Cronbach's Alpha was $\alpha$=.91. In the current study Cronbach's Alpha was $\alpha$=.88.

### *2.2.3. Subjective well-being*

Subjective well-being of participants was assessed by The Adolescent Subjective Well-Being Scale (ASWBS) which is developed in Turkish by [45]. The ASWB is Likert-type scale and consists of 15 items with four factors. The subscales are satisfaction in family relationships [FS, with 4 items (e.g., "My family loves me.")], relation satisfaction with important ones [RSI, with 4 items (e.g., "I'm with my friends")], life satisfaction [LS, with 4 items (e.g., "I live by enjoying.")], and positive affect [PA, with 5 items (e.g., "I feel generally happy.")]. [45] found retest reliability of ASWBS was found .83. In the current study Cronbach's Alpha was $\alpha$=.90

### *2.2.4. Demographics*

In order to identify participants' socio-demographic characteristics, we used sociodemographic information sheet which consists of multiple-choice questions such as, who was your first social supporter during COVID-19 lockdown? select one (a) Parent (Mother-Father) and (b) significant others (such as; peers, teachers)

## 2.3 Analyses

In order to analyse descriptive statistics, SPSS 26 package program and to test covariance-based model AMOS 22 was used. Firstly, we checked normality of data. Kolmogorov-Smirnov and Shapiro-Wilk tests results indicate that the normal distribution. Then, the model was tested in two steps [46, 47]. In the first step a confirmatory factor analyses (CFA) of measurement model that consists of three latent variables represented by their indicators. In the second step the mediation effect of the resilience was tested with maximum likelihood estimations a structural equation procedure was applied [48]. In this measurement model to decrease model complexity and estimation errors resilience as a latent variable with 2 parcels, health promotion behaviours as a latent variable with 6 parcels, and subjective well-being as a latent variable with 4 parcels were built by using

item-to-construct balancing procedures [49]. The adequacy of the model fit was assessed by the chi-square statistic ($\chi 2$), a Comparative Fit Index (CFI) of .90 or above, a Root Mean Square Error of Approximation (RMSEA) of .06 or less and a Standardised Root Mean Square Residual (SRMR) of .08 or less [50, 51].

### 2.4 Ethical Considerations

Researchers adhere to ethical guidelines specified in the APA Code of Conduct [52], as well as national ethics guidelines [53]. Ethical approval was obtained separately from the ethics and publication board members of Cyprus International University with the reference number-020-2865 on March 3rd, 2022, and from the Ministry of Education in the northern part of Cyprus with the reference number MTÖ.O. OO-174/06-22/E.1706 on March 25, 2022, and parental permission was obtained and voluntary participation of adolescents considered.

## 3 Results and Discussion

### 3.1 Descriptive Results

In Table 2, mean and standard deviation measures related to the dependent and independent variables and values of Pearson correlation coefficients are presented. As shown in Table 2, all of variables that are statistically significant corelated. socio-economic level which was measured as covariate variable that significantly related to satisfaction with family relationships, relation satisfaction with important ones, life satisfaction, positive affect and total subjective well-being level. Socio-economic level was not significantly corelated with other study variables in the present study.

### 3.2 Measurement Model

In order to analyse measurement model, we used CFA. The measurement model consists of three latent variables and twelve observed variables (see figure 2). This model revealed a good fit to the data ($\chi 2$ (55) = 145, $p < .001$, CFI = 1.000, RMSEA = .04, 90% CI [.05–.08], SRMR = .07).

### 3.3 Structural Model

In the first phase of the structural model of this study, we test direct effect of health promotion behaviours on the subjective well-being of adolescents without including their resilience level. The directly standardized path coefficient was significant and the direct effect model provided fit to the data well, $\chi 2$ (6) = 641102, $p < .001$, CFI = 1.000, RMSEA = .04, 80% CI [.05–.09], SRMR = .08. Then, resilience as mediation and a direct path from the health promotion behaviours to subjective well-being, was tested.

**Table 2.** Bivariate corelations between study variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Gender | 1 | | | | | | | | | | | | | | |
| 2.Socio-economic level | -.05 | 1 | | | | | | | | | | | | | |
| 3.Social Support | .15* | .03 | 1 | | | | | | | | | | | | |
| 4.Life Appreciation | .08 | .05 | .24* | 1 | | | | | | | | | | | |
| 5.Health Behaviours | .10* | .03 | .81** | .78** | 1 | | | | | | | | | | |
| 6.SM | .13* | .08 | .80*** | .85*** | .87*** | 1 | | | | | | | | | |
| 7.Nutrition Behaviours | .14* | .08 | .71*** | .69*** | .78** | .75** | 1 | | | | | | | | |
| 8. Exercises Behaviours | .17* | .07 | .74*** | .71** | 69** | .78*** | .75** | 1 | | | | | | | |
| 9. S. Family Relationship | .13* | .10* | .28* | .28* | .27* | .30* | .25* | .25* | 1 | | | | | | |
| 10.SSR | .12* | .08* | .52** | .55** | .48** | .58** | .50** | .50** | .48** | 1 | | | | | |
| 11.LS | .13* | .12* | .51** | .58** | .51** | .59** | .57** | .57** | .55** | .59** | 1 | | | | |
| 12.Positive Affects | .18* | .11* | .43** | .42** | .40** | .42** | .43** | .43** | .63** | .57** | .62** | 1 | | | |
| 13.HPB | .14* | .06 | .90*** | .90*** | .94*** | .94*** | .86*** | .86*** | .30* | .57** | .60** | .45* | 1 | | |
| 14.Reslience | .13* | .08 | .69** | .74** | .70** | .73** | .63** | .63** | .50** | .62** | .66** | .58** | .77 | 1 | |
| 15.SWB | 14* | .13* | .53** | .56** | .51** | .57** | .53** | .53** | .74*** | .72*** | .79*** | .78*** | .59*** | .72*** | 1 |
| *SD* | .49 | .44 | .87 | .81 | .84 | .92 | .99 | .76 | .48 | .55 | .73 | .54 | .78 | 1.17 | .88 |
| Mean | 1.45 | 2.04 | 4.04 | 4.20 | 4.03 | 4.07 | 4.03 | 3.60 | 3.55 | 3.37 | 3.40 | 3.51 | 4.02 | 7.90 | 6.49 |

*Notes. SD=Standard Deviation, SM=Stress Management, HPB=Health Promotion Behaviours, SWB=Subjective well-being, S.=Satisfaction, RSI=Relation Satisfaction with Important Ones, LS=Life Satisfaction, *=.005, **=.001, ***=.0001*

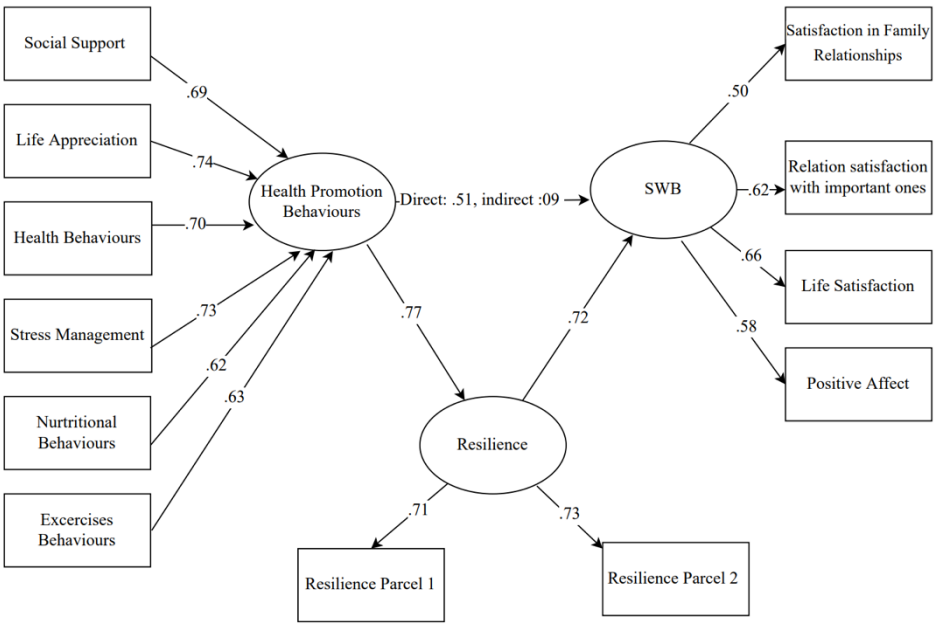


**Fig. 2.** Mediation Model Subjective Well-being for Adolescence. Notes. Standardized coefficients for significant paths are presented on the figure.

## 4 Strengths and Limitations

The present study has strengths, including the understanding of Turkish-speaking adolescents' health promotion behaviours, resilience levels, and inclusion of the post-pandemic measures to realize subjective well-being model of adolescents during the COVID-19 pandemic. Still, several limitations should be mentioned. The first limitation of this research is sample size. We used convenience sampling technique to recruit participants. The data were gathered from a relatively homogenous sample. It cannot be ensured the results are generalizable all adolescents. Moreover, data based on self-reported, especially for the measure of health promotion behaviours of adolescents, should be addressed the parents' and teachers' observation results in future researches.

## 5 Conclusion

This study contributes to the existing literature by showing a predictor roles and mediating effects of health promotion behaviours in the relationship between resilience and subjective well-being of Turkish-speaking adolescence a potential consequence of the post pandemic. Our study results highlight the importance of health promotion behaviours for adolescence during pandemic conditions as well as promote subjective well-being. Moreover, the importance of resilience for subjective well-being in this developmental stage.

We are grateful for all the adolescents who participated in this study, who generously shared their time and their perspectives with the researchers. This research was conducted as part of the MA program in Guidance and Psychological Counselling by the second author under the supervision of the first author at Cyprus International University, northern part of Cyprus. Supplementary materials are available online: https://osf.io/tr2cu/?view_only=24542c78cbe14a7783ce9b6428f4f0a6, doi: DOI 10.17605/OSF.IO/TR2CU

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