

Predictive Role of Grit and Basic Psychological Needs Satisfaction on Subjective Well-Being for Young Adults

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Abstract

In this research, it is aimed to investigate the predictive role of grit as a personality trait and basic psychological needs satisfaction on subjective well-being among young adults. Participants of this research are 348 voluntary young adults who are final year undergraduate students in the government universities of Istanbul city, Turkey as well as graduates who work. There are 200 (57.5%) females and 148 (42.5%) males. The average age is 23.01 (sd=2.52). Data collection tools used in this research are 'Subjective Well-Being Scale' (Tuzgöl-Dost, 2015), 'Revised Grit Scale' (Duckworth and Quinn, 2009) and 'Basic Psychological Needs Satisfaction Scale' (Deci and Ryan, 1991). Pearson product-moment correlation coefficient, hierarchical regression analysis and independent group t tests are conducted. According to the findings, female participants have higher subjective well-being levels than males. Relatedness satisfaction sub-scale score from basic psychological needs satisfaction scale and total score of basic psychological needs satisfaction are found to show a significant difference in favor of females. Regression analysis concluded that grit, satisfaction of three basic psychological needs (autonomy, competence and relatedness) and gender are the meaningful predictors of subjective well-being for young adults. Satisfaction of three basic needs predicts subjective well-being stronger than grit and gender. Besides, a positive and statistically significant relationship between the satisfaction of three basic needs and grit tendency is concluded. Findings are discussed in the light of the related literature. Suggestions are made for further researches and for school counsellors and mental health professionals.

Keywords: Grit, basic psychological needs satisfaction, self-determination theory, subjective well-being, young adults.

1. Introduction

In recent years studies that draw attention in the field of mental health have often focused on the concepts of positive psychology. Positive psychology builds an interest not only to the damaged ways of a person but also his/her functional traits and defends to protect them. Subjective well-being which has been emphasized in many researches is one of the main concepts within positive psychology perspective (Akın, 2015; Seligman and Csikszentmihalyi, 2000). Referred as a synonym to happiness in the literature, subjective well-being is defined as people's experiencing negative feelings less while they experience positive feelings often and they get more satisfaction from their lives (Haybron, 2000; Diener, 2000; Hefferon and Boniwell, 2014). As can be concluded from this definition, subjective well-being has two dimensions which are cognitive and emotional. People's judgement regarding their own life satisfaction is cognitive dimension of subjective well-being, aka happiness (Dorahy, Lewis, Schumaker, Akuamoah-Boateng, Duze and Sibiya, 2000), while emotional dimension covers the positive and negative feelings (Rask, Astedt-Kurki and Laippala, 2002). Subjective well-being is closely related how a person evaluates his/her own life in terms of emotionally and cognitively (Diener, Lucas and Oishi, 2003). So, a person's subjective well-being is defined with his/her inner experiences and measured by his/her own perspective. Diener (2000) reports that people with higher subjective well-being have tendency to be more creative, persistent, optimist, social, systematic and helpful as well as they live longer while their tendency to be selfish and hostile is rare.

On the other hand, it is argued that the agreement or disagreement between people's goals and their opinion to what extent they reach those goals plays a determinative role for subjective well-being (Rask, Astedt-Kurki and Laippala, 2002). Another characteristic that is considered as a part of personality and therefore important for one's life in order to reach his/her goals is grit. Grit is explained with persistence, consistency, resilience and perseverance concepts which are known as powerful personality traits. According to this, people who has a grit personality trait do present more perseverance and passion behaviors to reach their long-term goals. Those people show consistent, resilient and emotionally controlled behaviors and those traits are embodied by positive life outputs (reaching their goals) (Duckworth, Peterson, Matthews and Kelly, 2007; Roberts, 2009). It is also stated that grit differentiates the people with same intelligence but with different successes. Researchers note that this situation is related to the high self-control and self-discipline (Duckworth, Peterson, Matthews and Kelly, 2007; Duckworth and Quinn, 2009; Arıcı, 2015). According to Peterson and Seligman (2004), grit is a voluntary act that motivates people continue their goal-oriented behaviors despite barriers, difficulties and hopelessness. As Duckworth and Gross (2014) stated people with high level of grit tendency do not tire. Those people tend to tackle when other people give up. Also, such people exhibit more flexible behaviors and overcome difficulties

with an analytic perspective. Roberts (2009), otherwise, defends that people who have strong grit are easily motivated for goal-oriented behaviors and present resilient characteristics in a goal-oriented attitude. Those characteristics are seen as the most vital bases for a person to achieve his/her goal. As a result of all these definitions, it can be summarized that if a person has a grit personality trait then it is possible for him to achieve his/her goals (Solmaz, Aksoy, Şengül and Sarıışık, 2014). In this context, people who achieve their goals with their grit behaviors are expected to increase their subjective well-being. Although there are limited numbers of studies regarding this issue in the literature, there are researches findings supporting this perspective. Those researches revealed that there are statistically significant relationships between grit and life satisfaction, happiness and well-being which are concepts that are related to subjective well-being (Singh and Duggal Jha, 2008; Tiittanen, 2014). On the other hand, young adulthood period is when people take important decisions for their professional and private lives. Sheldon and Elliot (1999) reports that grit is a significant trait as it helps people to reach their goals that are consistent with themselves. This information indicates that young adults' grit traits are effective in terms of their actualization of their life sustaining decisions that they are to take. From this perspective, it is thought that when a young adult makes his/her decisions in a grit manner, performs it and reaches his/her goals then it influences his/her subjective well-being positively which is shaped by judging his/her life.

Basic psychological needs and their satisfaction are also considered as one of the variables that might influence people's subjective well-being levels and grit tendencies. There are three basic psychological needs that are stated by self-determination theory. These are autonomy, competence and relatedness (Deci and Ryan, 1985; Deci and Vansteenkiste, 2004). Autonomy need refers to the freedom to choose the activities one likes, to determine one's his/her own behavior and decide as he/she wishes. Competence is the second need. Competence need is related to use people's their own capacity. Those who satisfy this need do overcome difficulties easily and realize their own competence by the admiration from others. Relatedness is the third need and it expresses the sense of belonging to other people they interact. The satisfaction of these three basic needs are required for people to grow up, to psychologically integrate, to develop and for their mental health and well-being according to the self-determination theory. When basic psychological needs are satisfied, the pleasure from life increases while concerns regarding to life decreases (Deci and Ryan, 2002; Garcia and Pintrich, 2009; Mithaug, Mithaug, Agran, Martin and Wehmeyer, 2003). Autonomy, competence and relatedness are determinants of subjective well-being. Researchers focus that not only satisfaction one or two of these needs leads to mental health and well-being but satisfaction of all of three (Deci and Ryan, 2000). It is also proposed that satisfaction of these basic needs, reaching people's goals, making their choices autonomously, applying their decisions and behaviors in accordance with the choices they have made and having enough capacity as well as being persistent enough to do this, getting support from their friends in doing all these things and having good relationships with the society will increase their subjective well-being levels. (Yarkin, 2013). Researches with different samples imply that the satisfaction of the basic psychological needs will promote people's subjective well-being (Cihangir-Çankaya, 2009; Reis, Sheldon, Gable, Roscoe and Ryan, 2000; İlhan and Özbay, 2010; Tay and Diener, 2011; Yarkin, 2013).

When the literature is reviewed, it is concluded that there are studies discussing the relationship between subjective well-being and either grit or basic psychological needs satisfaction separately; whereas, there has not been seen any researches that those two variables which are grit and basic psychological needs satisfaction are studied together to determine their predictive power on subjective well-being. In this context, the aim of this study is to investigate the predictive role of young adults' grit tendency and basic psychological needs satisfaction on subjective well-being. The findings of this research are supposed to be leading in terms of planning and administrating the school counseling services and supporting the preventive and promotional functions of guidance services. Besides, it is also expected to determine a different perspective for psychological counselors in terms of consultancy services with families.

2. Method

2.1. Research Model

As this research aims to investigate the predictive power of the grit and basic psychological needs satisfaction on subjective well-being of young adults, it is designed as correlational survey research.

2.2. Participants

Participants of this research were 348 voluntary young adults who were final year undergraduate students in the government universities of Istanbul city, Turkey as well as graduates who worked. There are 200 (57.5%) females and 148 (42.5%) males. The average age is 23.01 (sd=2.52).

2.3. Data Collection Instruments

To collect data, 'Subjective Well-Being Scale' (Tuzgöl-Dost, 2005), 'Revised Grit Scale' (Duckworth and Quinn,

2009) and 'Basic Psychological Needs Satisfaction Scale' (Deci and Ryan, 1991) are used. Psychometric properties of the scales are as presented below.

Subjective Well-Being Scale: This scale was developed by Tuzgöl-Dost (2005) to determine people's subjective well-being levels. There are 46 items in the scale; 26 of them are positive while 20 is negative. It is designed as a 5-point Likert Scale. Scale consists of items which express personal judgements towards people's lives (work, family, relationships etc) and positive and negative feelings. The higher the score a person gets from the scale, the higher his/her subjective well-being is. According to the explanatory factor analysis results, the scale has one general factor besides its 12-factor structure. The results of the validation analysis show a negative and significant ($r = -.70$) relationship between Subjective Well-Being Scale and Beck Depression Inventory. Reliability results are .93 for Cronbach Alpha internal consistency coefficient and .86 for test re-test reliability coefficient (Tuzgöl-Dost, 2005).

Revised Grit Scale: Revised Grit Scale which was developed by Duckworth and Quinn (2009), was adopted to Turkish culture by Akin, Abacı, Arıcı, Uysal and Uysal (2011). Consistency of interest and perseverance of effort are two sub-dimensions of the scale. There are 8 items in the scale. It is designed as a 5-point Likert Scale. Higher score from the scale points higher level of grit. According to the results of the explanatory and confirmatory factor analysis, the adopted scale has 8 items and two sub-dimensions as the original form has. Cronbach Alpha Internal Consistency Coefficient are .63 for consistency of interest and .60 for perseverance of effort (Kaya, 2015). Cronbach Alpha Internal Consistency Coefficient is re-calculated as the statistical estimates are made based on the total score. Cronbach Alpha Internal Consistency Coefficient for total score is determined as .76.

Basic Psychological Needs Satisfaction Scale: The original form of the scale was developed by Deci and Ryan (1991) and adopted to Turkish culture by Cihangir-Çankaya and Bacanlı (2003). There are 21 items in the scale regarding three main psychological needs of people. There are seven response categories for each item from 1 to 7. The scale is a 7-point Likert Scale. The sub-scales are autonomy, competence and relatedness. The scale provides scores for both sub-scales and total scale. Higher scores from the scale means that people are satisfied in terms of their basic psychological needs while lower scores point their satisfaction levels decrease. Results of explanatory and confirmatory factor analysis show that adopted scale protects its original three factor structures. Cronbach Alpha Internal Consistency Coefficients are .71 for autonomy sub-scale, .60 for competence sub-scale and .74 for relatedness sub-scale. Cronbach Alpha Internal Consistency Coefficient for the whole scale is calculated as .83. To estimate the test re-test correlation coefficient, the scale was applied twice in two weeks apart. The results show that test re-test correlation coefficient for whole scale is .89; for autonomy sub-scale is .82, for competence sub-scale is .80 and for relatedness sub-scale is .81 (Cihangir-Çankaya, 2005).

2.4. Procedure

Administrations of the scales were solely based on the participants volunteering. Participants completed answering the scales in 40-45 minutes. Participants were informed that their responses would only be used for this research and their sincere responses mattered in terms of the reliability of this study.

First in the data analysis process, data collection tools which were not completed entirely or responded improperly were eliminated. To detect the outliers, z scores of continuous variables were calculated. Data which was above or below ± 3 z standard scores was accepted as outliers (Çokluk, Şekercioğlu and Büyüköztürk, 2010) and eliminated from the data set. After data elimination process, analysis was performed on 348 participants. The assumption of normal distribution of continuous variables were tested via Kolmogorov-Smirnov Normality Test (Büyüköztürk, 2007; Tabachnick and Fidell, 2013). Scores of continuous variables were concluded to distribute normally. Relationships between variables were calculated via Pearson product-moment correlation coefficient. Hierarchical Regression Analysis was conducted to determine the predictive role of grit and basic psychological needs satisfaction on subjective well-being. Besides, as the gender is the control variable in this research, independent groups t-test was performed to draw a conclusion whether grit, basic psychological needs satisfaction and subjective well-being differed in terms of gender. SPSS statistical package program was used. Significance level for statistical analysis was accepted as .05.

3. Findings

In this research, as the gender was set as the control variable, independent groups t-test was performed to determine whether participants' grit, basic psychological needs satisfaction and subjective well-being differed in terms of gender. Findings were presented in Table 1.

Table 1. Research variables and their differentiation in terms of gender

Variables	Female		Male		t
	X	ss	X	ss	
1. Grit	3.43	.66	3.37	.59	.88
2. Autonomy	4.76	.73	4.75	.72	.14
3. Competence	4.50	.67	4.48	.65	.25
4. Relatedness	5.15	.68	4.91	.70	3.28*
5. Need Satisfaction (Total Score)	4.85	.53	4.75	.55	1.94***
6. Subjective Well- being	4.01	.53	3.82	.52	3.38***

*N(Female)=200, N(Male)= 148, *p<.05, ***p<.001*

Table 1 shows that young adults' subjective well-being average scores differ in terms of gender in favor of females ($t= 3.38, p<.001$). Another finding reveals that females' average score of basic psychological needs satisfaction are higher than males ($t= 1.94, p<.001$). Average scores of relatedness sub-scale which is a sub-scale of basic psychological needs satisfaction differ in terms of gender in favor of females ($t= 3.28, p<.05$). It is determined that autonomy and competence which are sub-scales of basic psychological needs satisfaction and grit show no significant difference in terms of gender.

Average scores and standard deviations of this researches' main variables and the Pearson product moment correlation coefficients between those variables are presented in Table 2.

Table 2. Mean, Standard Deviation and Pearson Correlation Coefficient of Research Variables

Variables	M	SD	1	2	3	4	5	6
1. Autonomy	4.75	.73	1					
2. Competence	4.49	.66	.42**	1				
3. Relatedness	5.05	.70	.37*	.41**	1			
4. Need Satisfaction (Total Score)	4.81	.54	.74**	.73**	.84**	1		
5. Grit	3.41	.63	.31**	.38**	.24**	.39**	1	
6. Subjective Well- being	3.93	.53	.53**	.58**	.59**	.74**	.47**	1

**p<.01

Table 2 reveals that there is a positive and statistically significant relationship between young adults' grit and subjective well-being scores ($p<.01$). Also, it is proved that there is a positive and statistically significant relationship between subjective well-being scores and autonomy, competence and relatedness sub-scores of basic psychological needs satisfaction scale ($p<.01$). Additionally, grit scores and basic psychological needs satisfaction scale scores (autonomy, competence and relatedness) are correlated to each other positively and statistically significant ($p<.01$).

Based on the significant relationships between variables, Hierarchical Regression Analysis was performed to determine the predictive power of grit and basic psychological needs satisfaction on subjective well-being. The findings are presented in Table 3. Due to the differences related to gender variable, this variable was set as control variable for this particular analysis. Thus, gender was appointed as a control variable in the first step of the equation. Grit was added in the second step while three basic psychological needs satisfaction (autonomy, competence and relatedness) was added in the last step.

Table 3. Hierarchical Regression Analysis Results Regarding Grit and Basic Psychological Needs Satisfaction Predicting Subjective Well-Being

Model	β	t	F
1. (Constant)		49.14***	
Gender	-.18	-3.38***	11.408***
2. (Constant)		18.04***	
Gender	-.16	-3.35***	56.975***
Grit	.47	9.97***	
3. (Constant)		2.46*	
Gender	-.11	-3.01**	
Grit	.21	5.64***	
Autonomy	.23	5.85***	99.746***
Competence	.26	6.40***	
Relatedness	.33	8.36***	

For the 1st step: Adjusted $R^2 = .03, R^2$ Change = .03; For the 2nd step: Adjusted $R^2 = .24, R^2$ Change = .22; For the 3rd step: Adjusted $R^2 = .59, R^2$ Change = .35; ***p<.001.

As can be seen in Table 3, the predictive role of independent variables for each model was proven to be statistically significant. If the regression model was discussed, gender variable added to the equation in the first step was found to explain 3% variance of subjective well-being scores ($F= 11.408, p<.001$). Grit, the second

added variable to the equation, did contribute to the variance explained. The variance explained by the first two variables was found to be 24% ($F= 56.975$, $p<.001$). In the third step, autonomy, competence and relatedness were added to the equation as a block. Due to this, the explained variance increased to 59% for subjective well-being by the support of the autonomy, competence and relatedness ($F= 99.746$, $p<.001$). In other words, these three variables explained the %59 variance of subjective well-being. Standardized beta coefficients indicated that the greatest contribution to the model was made respectively by relatedness ($\beta=.33$), competence ($\beta=.26$) and autonomy ($\beta=.23$) which are the sub-scales of basic psychological needs satisfaction. Other words, sub-scales of basic psychological needs satisfaction make a great contribution to the model. Grit variable ($\beta=.21$) contributed to the model as second while gender ($\beta= -.11$) is at third place.

4. Discussion

In this study, the predictive role of young adults' grit tendency as a personality trait and basic psychological needs satisfaction on subjective well-being was tested. Besides, gender was designed as the control variable, all three variables were also tested whether they differed in terms of gender. The findings concluded that the satisfaction of autonomy and competence needs from basic psychological needs and grit did not show any difference in terms of gender. However, total score of basic psychological needs satisfaction scale and relatedness sub-scale score showed difference in favor of females (Table 1). The related literature defends that basic psychological needs satisfaction shows no difference in terms of gender (Gündoğdu and Yavuzer, 2012; Ekici, Öntürk and Karafıl, 2016; Karakaş and Kaya, 2016). Those findings are partially consistent with this research findings. Some researches, on the other hand, proved that females have higher scores in, specifically, relatedness subscale (Cihangir-Çankaya, 2009; Çelikkaleli and Gündoğdu, 2005). Women's having met the need to be related much more than men may be due to their social interest, interaction and belonging need and orientation's being greater than men.

Besides, subjective well-being levels of females are found to be higher than males (Table 1). There are researches with the parallel findings (Gündoğdu and Yavuzer, 2012; Cihangir-Çankaya, 2009) while some studies found no difference in terms of gender (Şahin, Aydın, Sarı, Kaya and Pala, 2012; Nur-Şahin, 2011; Tuzgöl-Dost, 2010). There are also findings that males have higher level of subjective well-being than females (Yurcu and Atay, 2015; İlhan, 2005; Tümkaya, 2011). This inconsistency of the findings may be because that subjective well-being is a construct that is unrelated with gender and is shaped by personally.

When the relationships between variables are studied, the higher the young adults' basic psychological needs satisfaction (autonomy, competence and relatedness) is, the higher their subjective well-being is. Additionally, young adults' subjective well-being also increases when their grit tendency rises. Finally, it is spotted that as the three-basic psychological needs satisfaction increase, their grit tendency also increases (Table 2).

In the light of the main aim of this research, hierarchical regression analysis was conducted to determine the predictive role of grit and basic psychological needs satisfaction on subjective well-being. The findings revealed that the most powerful predictors of subjective well-being are three basic psychological needs satisfaction (autonomy, competence and relatedness) (Table 3). In other words, when young adults' satisfaction level of autonomy, competence and relatedness increases, their level of subjective well-being promotes. The literature defends that when people are grown up in places that they can satisfy their basic psychological needs from their early times, they have higher level of subjective well-being (Deci and Ryan, 2000; Reis et al., 2000; Uysal, Lin and Knee, 2010). In other words, if these needs are blocked or not met sufficiently, this causes negative results in terms of mental health and well-being. There are studies in the literature defending these findings (Kermen and Sarı, 2014; Özaydın, Sevinç, Deniz, 2014; Sheldon, 2012; İlhan and Özbay, 2010; Cihangir-Çankaya, 2009). Also, it is emphasized that to promote subjective well-being, it is not enough to meet one or two of these needs but three of them must be met (Deci and Ryan, 2000). The finding that subjective well-being promotes if these three needs satisfaction level rises is proof for this theoretical assumption.

Another variable that promotes subjective well-being is young adults' grit tendency (Table 3). Grit is found to be a statistically significant predictor of subjective well-being. Grit as a personality trait, is explained by perseverance, consistency, resilience and persistence concepts. People with this trait do behave consistently and persistently to reach their long-term goals and can easily control their feelings by standing against the barriers (Duckworth, Peterson, Matthews & Kelly, 2007; Roberts, 2009). It is an expected result that these people who can reach their goals easily are to have high subjective well-being levels. Research findings from different cultures also supports this argument (Tiittanen, 2014; Vainio and Daukantaite, 2016; Kwon; 2016; Salles, Cohen and Mueller; 2014; Von Culin, Tsukayama and Duckworth, 2014; Singh, Duggal Jha, 2008). In these studies, positive and statistically significant relationships between grit and concepts that are close to subjective well-being such as happiness, life satisfaction and psychological well-being are identified. On the other hand, it should be reminded that there is positive relationship between the satisfaction of three basic needs and grit. This can also be a proof that grit has a positive support to the subjective well-being. To put it differently, gritty people

show resilience in case of difficulties and also show flexible behaviors, cope with stress and do not give up easily (Bailly, Joulain, Hervé, and Alaphilippe, 2012; Duckworth, Peterson, Matthews and Kelly, 2007). Due to this fact that they are more capable of satisfying their autonomy, competence and relatedness needs. This situation is thought to develop their level of subjective well-being. Yet, this inference needs further empiric researches to be supported.

Gender variable which was a control variable for this research is concluded to be one of the variables that predicts subjective well-being. According to this finding, females' level of subjective well-being is higher than males. As mentioned before, the findings regarding the gender is not consistent with each other. Yet, in this study, females have higher levels of subjective well-being may be since women take more active roles in professional and social environments and they stand on their own feed; therefore, they experience an increase in their self-efficacy beliefs and they perceive themselves and their lives more positively.

5. Conclusion and Suggestions

Consequently, research findings revealed that the predictive power of autonomy, competence and relatedness which are three basic needs is great for subjective well-being. On the other hand, it is concluded that grit is a statistically significant predictor for subjective well-being. Those two variables have a powerful effect together on subjective well-being. No other examples of such a research like this has been met as those two mentioned variables are tested together. So, this finding is supposed to contribute to the literature both theoretically and practically. Based on the findings, it can be suggested that intervention programs to increase the subjective well-being for universities and other educational levels can be prepared as well as activities to increase students' grit tendency and basic psychological needs satisfaction. Literature claims that grit is a trait that can be developed (Duckworth, 2016; Bashant, 2014). These activities may be constructed with both preventive and therapeutic guidance services. It is also suggested that university counselors and mental health professionals should help young adults to realize their needs for autonomy, competence and relatedness and meet them in individual and group counseling sessions. They are also suggested to help young adults to reveal their grit tendency. Thus, young adults' subjective well-being levels can be increased. Families should be provided with consultancy services as basic psychological needs satisfaction and grit as personality trait can be supported by families from early childhood. Besides, psychological counseling and guidance services which are limited in higher education in Turkey should be popularized and psychoeducational programs for undergraduate students might be advised to conduct to help university students realize about the issues discussed and increase their awareness.

There are some limitations of this research. As this study is held with young adults, the generalizability of the study might be in question. For this reason, it should be suggested to conduct the same study with different sample from various developmental periods. Grit which is a variable in this study has been a new concept of positive psychology and that has been studied for relatively short time. There are also limited number of researches done in Turkish culture regarding grit. Furthermore, this research is the first research as it investigates the grit, basic psychological needs satisfaction and subjective well-being together. Therefore, it is considered necessary to compare the findings with studies to be done in different cultures. Finally, in order to express the relationship better between grit, basic psychological needs satisfaction and subjective well-being, other variables that might influence basic psychological needs satisfaction, grit and subjective well-being such as socio-economic status, family structure (extended family, nuclear family etc.), parents' education background, perceived social support, attachment styles, child rearing attitudes of parents, early childhood experiences should also be studied together for further researches.

References

- Akın, A. (2015). *Psikolojik iyi olma* [Psychological well-being]. In A. Akın & Ü. Akın (Eds), *Psikolojide güncel kavramlar-I, pozitif psikoloji* [Current concepts in psychology-I, positive psychology] (pp.15-57). Ankara: Nobel Yayınevi.
- Arıcı, N. (2015). *Kararlılık* [Grit]. In A. Akın & Ü. Akın (Eds), *Psikolojide güncel kavramlar-I, pozitif psikoloji* [Current concepts in psychology-I, positive psychology] (pp.103-107). Ankara: Nobel Yayınevi.
- Bailly, N., Joulain, M., Hervé, C., & Alaphilippe, D. (2012). Coping with negative life events in old age: The role of tenacious goal pursuit and flexible goal adjustment. *Aging & Mental Health*, 16, 431–437. doi:10.1080/13607863.2011.630374
- Bashant, J. (2014). Developing grit in our students: Why grit is such a desirable trait, and practical strategies for teachers and schools. *Journal for Leadership and Instruction*, Fall, 14-17.
- Büyüköztürk, Ş. (2007). *Sosyal bilimler için veri analizi el kitabı* [Handbook of data analysis for social sciences]. Ankara: Pegem A Yayıncılık.
- Cihangir-Çankaya, Z. (2005). *Öz belirleme modeli: Özerklik desteği, ihtiyaç doyumu ve iyi olma* [Self-determination model: Autonomy support, need satisfaction and well being]. Yayınlanmamış doktora tezi [Unpublished doctorate thesis], Gazi Üniversitesi, Ankara.

- Cihangir-Çankaya, Z. (2009). Öğretmen adaylarında temel psikolojik ihtiyaçların doyumu ve iyi olma [The satisfaction of basic psychological needs and subjective well being of teacher candidates]. *Türk Eğitim Bilimleri Dergisi*, 7(3), 691-711.
- Çelikkaleli, Ö., & Gündoğdu, M. (2005). Eğitim fakültesi öğrencilerinin psikolojik ihtiyaçları. [Psychological needs of education faculty students]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 6 (9), 43-53.
- Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2010). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları [Multiple variable statistics for social sciences: Applications of SPSS and LISREL]*. Ankara: Pegem A Yayıncılık.
- Deci, E. L., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia*, 27(1), 23-40.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Deci E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Deci, E. L., & Ryan, R. M. (2000). The ‘what’ and ‘why’ of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55(1), 34-43.
- Diener, E., Lucas, R. E., & Oishi, S. (2003). Subjective well-being: The science of happiness and life satisfaction. In C. R. Snyder & Shane J. Lopez (Eds), *Handbook of positive psychology* (pp.63-74). Oxford: Oxford University Press.
- Dorahy, M., J., Lewis, C., A., Schumaker J. F., Akuamoah-Boateng, R., Duzé, M. C., & Sibiya, T. E. (2000). Depression and life satisfaction among Australian, Ghanaian, Nigerian, Northern Irish, and Swazi university students. *Journal of Social Behavior and Personality*, 15 (4), 569-580.
- Duckworth, A. (2016). *Grit: Power of passion and perseverance*. New York: Simon & Schuster, Inc.
- Duckworth, A., & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*, 23, 319-325. doi: 10.1177/0963721414541462
- Duckworth, A. L. & Quinn, P. D. (2009). Development and validation of the short grit scale (Grit- S). *Journal of Personality Assessment*, 91 (2), 166-174. <http://dx.doi.org/10.1080/00223890802634290>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087-1101. <http://dx.doi.org/10.1037/0022-3514.92.6.1087>
- Ekici, S., Öntürk, Y., & Karafil, A. Y. (2016). Spor eğitimi veren yükseköğretim kurumlarında öğrenim gören öğrencilerin temel psikolojik ihtiyaçlarının incelenmesi [Analysis on basic psychological needs of the students studying in higher education institutions offering sports education]. *Journal of Human Sciences*, 13(3), 3885-3894. doi:10.14687/jhs.v13i3.396638.
- Haybron, D. M. (2000). Two philosophical problems in the study of happiness. *Journal of Happiness Studies*, 1, 207-225.
- Hefferon, K. & Boniwell, I. (2014). Pozitif psikoloji: Kuram, araştırma ve uygulamalar [Positive psychology: Theory, research and applications]. (Çeviri ed. T. Doğan). Ankara: Nobel Yayınevi.
- Garcia T., & Pintrich, P. R. (1996). The effects of autonomy motivation and performance in the college classroom. *Contemporary Educational Psychology*, 21(4), 477-486. <https://doi.org/10.1006/ceps.1996.0032>.
- İlhan, T. (2005). *Öznel iyi oluşa dayalı mizah tarzları modeli [A model of humor styles based on subjective well-being]*. Yayınlanmamış yüksek lisans tezi [Unpublished master thesis]. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- İlhan, T., & Özbay, Y. (2010). Yaşam amaçlarının ve psikolojik ihtiyaç doyumunun öznel iyi oluş üzerindeki yordayıcı rolü [The predictive role of life goals and psychological need satisfaction on subjective well-being]. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 4 (34), 109-118.
- Gündoğdu, R., & Yavuzer, Y. (2012). Eğitim fakültesi öğrencilerinin öznel iyi oluş ve psikolojik ihtiyaçlarının demografik değişkenlere göre incelenmesi [Examining subjective well-being and psychological needs of students at the educational faculty according to demographic variables]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 12, (23), 115-131.
- Karakaş, G., & Kaya, E. (2016). Üniversite öğrencilerinin serbest zaman aktivitelerine katılım durumları ile öznel zindelik ve temel psikolojik ihtiyaçlarının belirlenmesi [The determination of university students' participation status of leisure time activities, subjective fitness and basic psychological needs]. *ERPA International Congress on Education Proceedings Book*, 764-772. Retrived from https://www.erpacongress.com/upload/dosya/erpa_2016_book_of_proceedings_final_157e00410c96c9.pdf.
- Kaya, Ç. (2015). Bilişsel [Cognitive]. In A. Akın (Ed.), *Psikolojide kullanılan güncel ölçme araçları [Current measuring instruments used in psychology]* (pp.369-430). Ankara: Nobel Yayınevi.

- Kermen, U., & Sarı, T. (2014). Üniversite öğrencilerinde ihtiyaç doyumu ve öznel iyi oluş arasındaki ilişkinin incelenmesi. [Need satisfaction and subjective well-being among university students]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 14(2), 175-185.
- Kwon, H. W. (2016). *Benefits of grit and a sense of control: a cross-cultural examination on subjective well-being*. Conference Papers, American Sociological Association, 1-22. Retrieved from <https://www.library.caltech.edu/eds?search=y&query=%22CROSScultural%20studies%22&type=DE&resultsperpage=50>
- Mithaug, E. D., Mithaug, K. D., Agran, M., Martin, E. J., & Wehmeyer, M. L. (2003). *Self-determined learning theory: Construction, verification, and evaluation*. New Jersey: Lawrence Erlbaum Associates publishers.
- Nur-Şahin, G. (2011). *Üniversite öğrencilerinin kendini açma, öznel iyi oluş ve algıladıkları sosyal destek düzeylerinin karşılaştırılması [Comparison of levels pertain to self disclosure, subjective well-being and perceived social support of university students]*. Yayınlanmamış yüksek lisans tezi [Unpublished master thesis]. Dokuz Eylül Üniversitesi, İzmir.
- Özaydın, N., Sevinç, S., & Deniz, M. E. (2014). Mesleki müzik eğitimi alan öğrencilerin psikolojik ihtiyaçlarının ve yaşam doyumlarının incelenmesi [An examination of psychological need and life satisfactions of students receiving vocational music education]. *Sanat Eğitimi Dergisi*, 2 (1), 102-111.
- Peterson, C. & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, DC: American Psychological Association.
- Rask, K., Astedt-Kurki, P. & Laippala, P. (2002). Adolescent subjective well-being and realized values. *Journal of Advanced Nursing*, 38, 254-263.
- Reis, H. T., Sheldon, K. M., Gable, S., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: the role of autonomy, competence and relatedness. *Personality and Social Psychology Bulletin*, 26 (4), 419-435. <https://doi.org/10.1177/0146167200266002>.
- Roberts, Y. (2009). *Grit: The skills for success and how they are grown*. London: The Young Foundation.
- Salles, A., Cohen, G. L., & Mueller, C. M. (2014). The relationship between grit and resident well-being. *American Journal of Surgery*, 207 (2), 251-254. <http://dx.doi.org/10.1016/j.amjsurg.2013.09.006>
- Seligman, M. E. & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5-14.
- Sheldon, K. M. (2012). The self-determination theory perspective on positive mental health across cultures. *Journal of World Psychiatry*, 11 (2), 101-102. doi:10.1016/j.wpsyc.2012.05.017.
- Sheldon, K. M. & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal wellbeing: The self-concordance model. *Journal of Personality and Social Psychology*, 76 (3), 482-497.
- Singh, K. & Duggal Jha, S. (2008). Positive and negative affect, and grit as predictors of happiness and life satisfaction, *Journal of the Indian Academy of Applied Psychology*, 34, 40-45.
- Solmaz, S. A., Aksoy, Ö., Şengül, S., Sarıışık, M. (2014). Üniversite öğrencilerinin girişimci kişilik özelliklerinin belirlenmesi: Turizm lisans ve ön lisans öğrencileri üzerine bir alan araştırması [Tourism students' entrepreneurial personality traits: An empirical research on undergraduate associate and bachelor's students]. *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi*, 16 (26), 41-55.
- Şahin, M., Aydın, B., Sarı, S. V., Kaya, S., & Pala, H. (2012). Öznel iyi oluşu açıklamada umut ve yaşamda anlamın rolü [The role of hope and the meaning in life in explaining subjective well-being]. *Kastamonu Eğitim Dergisi*, 20 (3), 827-836.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson Education, Inc.
- Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology*, 101 (2), 354-365. <https://dx.doi.org/10.1037/a0023779>
- Tiittanen, M. (2014). *Grit and different aspects of well-being: Direct and indirect effects via sense of coherence and authenticity*. Master thesis. Lunds University, Sweden.
- Tuzgöl-Dost, M. (2005). Öznel iyi oluş ölçeği'nin geliştirilmesi: Geçerlik ve güvenilirlik çalışması. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 3 (23), 103-111.
- Tuzgöl-Dost, M. (2010). Güney Afrika ve Türkiye'deki üniversite öğrencilerinin bazı değişkenlere göre öznel iyi oluş ve yaşam doyumlarının incelenmesi. [An examination of subjective well-being and life satisfaction of students attending to universities in South Africa and Turkey]. *Eğitim ve Bilim*, 35 (158), 75-89.
- Tümkaya, S. (2011). Türk üniversite öğrencilerinde öznel iyi oluşu yordayan sosyodemografik değişkenler ve mizah tarzları [Humor styles and socio-demographic variables as predictors of subjective well-being of Turkish university students]. *Eğitim ve Bilim*, 36 (160), 158-170.
- Uysal, A., Lin, H. L., & Knee, C. R. (2010). The role of need satisfaction in self-concealment and wellbeing. *Personality and Social Psychology Bulletin*, 36 (2), 187-199. doi: 10.1177/0146167209354518
- Vainio, M. M., & Daukantaite, D. (2016). Grit and different aspects of wellbeing: Direct and indirect relationships via sense of coherence and authenticity. *Journal of Happiness Studies*, 17(5), 2119-2147. doi:10.1007/s10902-015-9688-7

- Von Culin, K. R., Tsukayama, E., & Duckworth, A. L. (2014). Unpacking grit: Motivational correlates of perseverance and passion for long-term goals. *The Journal of Positive Psychology, 9* (4), 306-312. <http://dx.doi.org/10.1080/17439760.2014.898320>
- Yarkın, E. (2013). *Temel psikolojik ihtiyaçların karşılanma düzeyinin ilişki doyumu ve yaşam doyumu düzeyine katkısının incelenmesi [The investigation of contribution to basic psychological needs level for life and relationship satisfaction]*. Yayınlanmamış yüksek lisans tezi. (Unpublished master thesis). İstanbul Arel Üniversitesi, İstanbul.
- Yurcu, G., & Atay, H. (2015). Çalışanların öznel iyi oluşunu etkileyen demografik faktörlerin incelenmesi: Antalya ili konaklama işletmeleri örneği. [Demographic factors that effect employees' subjective well-being: Antalya province evidence from hotel industry]. *Manas Sosyal Araştırmalar Dergisi, 4* (2), 17-34.