



A test of the career construction model of adaptation in a sample of Turkish undergraduate students: a two-wave longitudinal mediation study

Ahmet Kara¹

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Abstract

This longitudinal study aimed to test the mediating role of career adaptability in the relationship between optimism and subjective well-being. A total of 246 university students formed the final sample. The data were collected using the Optimism Scale, Positive and Negative Affect Schedule, Career Adaptability Scale, and Satisfaction with Life Scale. The data were analyzed using a cross-lagged panel model. A one-unit increase in Optimism Time 1 was related to a unit increase in Career Adaptability Time 2. In addition, a one-unit increase in Career Adaptability at Time 1 was related to a unit increase in Subjective Well-being at Time 2.

Keywords Career construction model of adaptation · Half-longitudinal mediation model · Cross-cultural study · Turkish

Résumé

Cette étude longitudinale visait à tester le rôle médiateur de l'adaptabilité de carrière dans la relation entre l'optimisme et le bien-être subjectif. Deux cent quarante-six étudiants universitaires ont constitué l'échantillon final. Les données ont été recueillies à l'aide de "L'échelle d'optimisme, l'échelle d'affect positif et négatif, l'échelle d'adaptabilité de carrière et l'échelle de satisfaction de vie". Les données sont analysées à l'aide d'un modèle de panel à décalage croisé. Une augmentation d'une unité dans l'Optimisme Temps 1 était liée à une augmentation d'une unité dans l'Adaptabilité de Carrière Temps 2. De plus, une augmentation d'une unité dans l'Adaptabilité de Carrière au Temps 1 était liée à une augmentation d'une unité dans le Bien-être Subjectif au Temps 2.

✉ Ahmet Kara
ahmetkara@kastamonu.edu.tr

¹ Division in Developmental Psychology, Department of Psychology, Faculty of Humanities and Social Sciences, Kastamonu University, Kuzeykent, 37200 Kastamonu, Turkey

Zusammenfassung

Diese Längsschnittstudie zielte darauf ab, die vermittelnde Rolle der beruflichen Anpassungsfähigkeit in der Beziehung zwischen Optimismus und subjektivem Wohlbefinden zu testen. Zweihundertsechundvierzig Universitätsstudenten bildeten die endgültige Stichprobe. Die Daten wurden mit Hilfe der "Optimismus-Skala, Skala für positive und negative Affekte, Skala für berufliche Anpassungsfähigkeit und Zufriedenheit mit dem Leben-Skala" erhoben. Die Daten wurden mit einem kreuzverzögerten Panelmodell analysiert. Eine Einheitserhöhung in Optimismus Zeit 1 war mit einer Einheitserhöhung in beruflicher Anpassungsfähigkeit Zeit 2 verbunden. Darüber hinaus war eine Einheitserhöhung in der beruflichen Anpassungsfähigkeit zu Zeit 1 mit einer Einheitserhöhung im subjektiven Wohlbefinden zu Zeit 2 verbunden.

Resumen

Este estudio longitudinal tuvo como objetivo probar el papel mediador de la adaptabilidad profesional en la relación entre el optimismo y el bienestar subjetivo. En total, 246 estudiantes universitarios conformaron la muestra final. Los datos se recogieron utilizando La Escala de Optimismo, el Programa de Afecto Positivo y Negativo, la Escala de Adaptabilidad Profesional y la Escala de Satisfacción con la Vida. Los datos se analizaron utilizando un modelo de panel con retraso cruzado. Un aumento de una unidad en el Optimismo Tiempo 1 estaba relacionado con un aumento de una unidad en la Adaptabilidad Profesional Tiempo 2. Además, un aumento de una unidad en la Adaptabilidad Profesional en el Tiempo 1 estaba relacionado con un aumento de una unidad en el Bienestar Subjetivo en el Tiempo 2.

Introduction

Subjective well-being is a structure that includes cognitive and emotional evaluations of an individual's life (Mikhaeil et al., 2024). In addition, subjective well-being is an important psychological concept that provides satisfaction with one's life, experiencing positive emotions more frequently and producing negative emotions less (Diener et al., 1985). Subjective well-being is considered an essential protective variable for the individual in both career and positive psychology. To concretize this, subjective well-being is a protective variable in student engagement and academic achievement (Wong et al., 2024), physical fitness and self-control (Wang et al., 2023), emotional autonomy and body image (Eryilmaz et al., 2023), social support and psychological capital (Xin, 2023), career resilience and career success (Han et al., 2021), career calling and career exploration (Ran et al., 2023), financial well-being (Iannello et al., 2021), and emotional self-efficacy (Calandri et al., 2021). As a result, the studies mentioned above stated that subjective well-being is essential in the individual's career and mental health development.

Career adaptability is a psychological resource for transitioning or overcoming difficulties and completing career development tasks (Savickas, 2005). In addition, the 4 Cs—confidence, concern, curiosity, and control—that constitute career adaptability are conceptualized as self-regulatory resources (Savickas & Porfeli, 2012).

Utilizing the resources that include these four Cs of career adaptability facilitates the individual to adapt to career development changes and make effective and healthy transitions in lifelong career development (Vashisht et al., 2023). In addition, increasing an individual's career adaptability has a positive contribution to their career satisfaction (Yen et al., 2023), job-search self-efficacy (Matijaš & Seršić, 2021), life satisfaction (Parola & Marcionetti, 2022), career decision self-efficacy (Zhao et al., 2022), resilience, and hope (Zeng et al., 2023).

Optimism is an individual variable that includes general expectations that good things will happen in an individual's life (Glassie & Schutte, 2024). In another definition, optimism is a cognitive inference about whether an individual will experience a positive outcome about their decisions or future (Purol & Chopik, 2021). Having more optimism positively affects psychological adjustment (Arslan, 2023), mental health (Rincon Uribe et al., 2022), physical health (Scheier et al., 2021), proactive career behavior (Korkmaz, 2023), career planning (Bharti & Rangnekar, 2019), and career motivation (Fang et al., 2018). In addition, higher optimism is associated with lower anxiety, stress, and depressive symptoms (Smida et al., 2021). In conclusion, these research findings and information indicate that optimism is an important basic protective concept for an individual's mental health and career development.

Hypothesis development and theoretical framework

Hypothesis 1 Optimism T1 significantly influences Career Adaptability T2.

The literature shows that optimism positively relates to career adaptability (Delle & Searle, 2022; Santilli et al., 2017). Fang et al. (2018) revealed that optimism positively predicted career adaptability in undergraduate nursing students. Kamila et al. (2023) found that optimism positively predicts career adaptability in university students. Buyukgoze-Kavas (2016) found that optimism positively predicts career adaptability in Turkish university students. Rudolph et al.'s (2017) meta-analysis study emphasized that optimism is an important variable affecting career adaptability. Vashisht et al.'s (2023) systematic review and meta-analysis study concluded that optimism has a positive relationship with career adaptability. Thus, we hypothesize that Hypothesis 1 = *Optimism T1 significantly influences Career Adaptability T2*.

Hypothesis 2 Career Adaptability T1 significantly influences Subjective Well-Being T2.

Studies in the literature emphasize that career adaptability is positively related to subjective well-being (Konstam et al., 2015; Ramos & Lopez, 2018; Ran et al., 2023; Takao & Ishiyama, 2021; Tokar et al., 2020). In addition, Tian et al.'s (2021) career adaptability positively predicts subjective well-being in employees. In addition, Eryılmaz and Kara's (2019) career adaptability positively predicts subjective well-being in a sample of Turkish teachers. Similarly, Kirdök and Bölükbaşı (2018) found that career adaptability positively predicts subjective

well-being in Turkish university senior students. Thus, we hypothesize that **Hypothesis 2 = Career Adaptability T1 significantly influences Subjective Well-Being T2.**

Hypothesis 3 Career Adaptability has a longitudinal mediating role in the relationship between Optimism and Subjective Well-Being.

The third hypothesis of this study is that Career Adaptability has a longitudinal mediating role in the relationship between Optimism and Subjective Well-Being. The theoretical framework of this mediating model is based on the career construction model of adaptation (CCMA). CCMA has important components, such as adaptive readiness, adaptability resources, and adaptation results, in its structure. CCMA is related to the variables in this study as follows: adaptive readiness reflects an individual's readiness and willingness for changes in career development (Nilforooshan, 2020). Previous studies have used optimism as adaptive readiness (Perera & McIlveen, 2014; Rudolph et al., 2017). Therefore, optimism is considered an indicator of adaptive readiness in this study. Adaptability resources are psychosocial resources that enable individuals to cope effectively with uncertain and complex problems or unexpected career transitions throughout their career development (Zhang et al., 2023). These adaptability resources are mainly conceptualized as career adaptability (Green et al., 2023; Kara et al., 2022). In this study, career adaptability was determined as adaptability resources. Adaptation results represent the last step of CCMA and express the career gains achieved by the individual in career development (Kara, 2023a, b). In both the theoretical explanation (Rudolph et al., 2017) and empirical study (Tokar et al., 2020), subjective well-being is described as an adaptation result. On the basis of these theoretical and empirical studies, adaptation results were defined as subjective well-being in this study. In addition to all these, CCMA suggests that adaptive readiness (optimism) mobilizes adaptability resources (career adaptability) to produce adaptation results (subjective well-being) (Savickas et al., 2018). Thus, we hypothesize that **Hypothesis 3 = Career Adaptability has a longitudinal mediating role in the relationship between Optimism and Subjective Well-Being.**

Especially recently, the career construction model of adaptation defines the parts of systematic review or meta-analysis studies (Johnston, 2018; Rudolph et al., 2017) and empirical studies testing these parts with different samples (Fang et al., 2018; Nilforooshan, 2020; Perera & McIlveen, 2014; Tokar et al., 2020; Zhang et al., 2023). Although these studies empirically test the CCMA components, they are cross-sectional and provide snapshot data. To overcome this limitation of cross-sectional studies, the literature needs to conduct longitudinal studies that reveal the long-term effects of the CCMA. In this regard, some longitudinal studies have been conducted in the foreign literature in recent years (Green et al., 2023; Šverko & Babarović, 2019; Urbanaviciute et al., 2019). However, in Turkey, there are cross-sectional studies (Kara et al., 2022; Kara, 2023a, b; Öztemel & Akyol, 2021; Ulaş-Kılıç & Peila-Shuster, 2023; Yıldız-Akyol & Öztemel, 2022) testing the effects of CCMA for a short period. Furthermore,

a longitudinal study defining the longer-term aspects of the CCMA in a Turkish sample has yet to be conducted. This situation shows the originality of this research. Therefore, addressing the long-term effects of CCMA in Turkish culture in the context of causality for the first time in this study will make an essential contribution to the career psychology literature. It is culturally necessary for this study to have a longitudinal aspect to reveal better the causal effects of the components of CCMA in Turkish culture, such as optimism (adaptive readiness), career adaptability (adaptability resources), and subjective well-being (adaptation results). In other words, this study will be an enlightening, motivating, and primary source for future research that will longitudinally test different components of CCMA in Turkish culture. In addition, this study is valuable in terms of increasing subjective well-being. Increasing the subjective well-being of individuals improves their leisure time management (Harada et al., 2024), self-esteem (Katsantonis et al., 2023), career commitment (Gan & Cheng, 2021), growth mindset of socioeconomic status (Zhao et al., 2021), emotional intelligence (Vil-lanueva et al., 2022), and hedonic and eudaimonic motivations (Jia et al., 2022). As a result, this longitudinal study aimed to test the mediating role of career adaptability (adaptability resources) in the relationship between optimism (adaptive readiness) and subjective well-being (adaptation results).

Method

Participant and procedure

Firstly, Ethics Committee approval was obtained from the [Omitted] University Social and Human Sciences Ethics Committee (E-16498365-050.01.04-2300126228). The researcher informed the participants about the aim and scope of the study in the classroom environment. The volunteer participants were then invited to participate in the survey through a web-based form distributed by the researcher. Additionally, informed consent was obtained from volunteer participants. Longitudinal data through the online form were collected over 3 months in two waves, with time 1 starting in mid-October 2023 and time 2 ending in mid-January 2024. A total of 268 university students participated in the first wave (T1), and 264 participated in the second wave (T2). After matching at the end of the two waves, 246 university students ($Age^{range} = 16\text{--}46$, $Age^{Mean} = 20.75$, $Age^{Sd} = 2.85$) formed the final sample. Of the last participants, 156 were female (63.4%) and 90 were male (36.6%). In addition, the final sample of 246 university students included 114 first-year students (46.3%), 42 second-year students (17.1%), 54 third-year students (22%), and 36 fourth-year students (14.6%).

Measures

Optimism Scale (OS)

OS was developed by Balcı and Yılmaz (2002). OS has 24 items and a unidimensional structure. In the confirmatory factor analysis of the OS, goodness-of-fit values ($\chi^2/df = 3.97$, CFI = 0.89, GFI = 0.88, and RMSEA = 0.08) were found to be at an acceptable level (Aldemir & Balcı Çelik, 2023). The reliability coefficient of the OS using the split-test method was calculated as 0.91 (Balcı & Yılmaz, 2002). The Cronbach's α of the OS was found to be 0.91 (Aldemir & Balcı Çelik, 2023). In this study, the Cronbach's α of the OS was found to be 0.90.

Career Adaptability Scale (CAS)

CAS was developed by Savickas and Profeli (2012). It was adapted to Turkish, and validity and reliability analyses were conducted (Kanten, 2012). In its original form, the CAS contains 4 dimensions and 24 items. In the confirmatory factor analysis of the CAS, four-dimensional and 19-item structure and acceptable goodness-of-fit values ($\chi^2/df = 3.5$, NFI = 0.90, IFI = 0.93, CFI = 0.93, RFI = 0.90 and RMSEA = 0.07) were obtained (Kanten, 2012). Kanten (2012) found that Cronbach's α of the subdimensions of the CAS ranged between 0.61 and 0.81. This study calculated the Cronbach's α of the entire CAS as 0.91 in both time 1 and time 2.

Positive and Negative Affect Schedule (PANAS)

Subjective well-being is when individuals experience positive emotions more frequently, feel satisfied with life, and experience negative emotions less regularly (Diener et al., 1985). This study used PANAS, developed by Watson et al. (1988), to measure positive and negative emotions. Gençöz (2000) was adapted into Turkish, and validity and reliability studies were implemented. PANAS is a 20-item measurement tool including 10 positive and 10 negative emotions. In the analysis conducted for the construct validity of PANAS, the total explained variance was found to be 44% (Gençöz, 2000). The Cronbach's α of PANAS was determined as 0.83 for positive emotion and 0.86 for negative emotion (Gençöz, 2000). In the time 1 phase of this study, the Cronbach's α of the PANAS was 0.75, while in the time 2 phase, the Cronbach's α was 0.77.

Satisfaction with Life Scale (SWLS)

Satisfaction with life is a component representing the cognitive aspect of subjective well-being. SWLS, developed by Diener et al. (1985), was used to measure this concept. Dağlı and Baysal (2016) adapted into Turkish, and validity and reliability analyses were conducted. SWLS has five items and one dimension. SWLS were obtained excellent goodness of fit values ($\chi^2/df = 1.17$, CFI = 1.00, GFI = 0.99, NFI

= 0.99, and RMSEA = 0.03) (Dağlı & Baysal, 2016). The Cronbach's α of SWLS was 0.88 (Dağlı & Baysal, 2016). In the time 1 phase of this study, the Cronbach's α SWLS was 0.84, while in the time 2 phase, the Cronbach's α SWLS was 0.88.

Statistical analysis

First, normality (kurtosis and skewness values), reliability (Cronbach's α), and correlation analysis were performed for preliminary analyses. These procedures were analyzed using the IBM SPSS Statistics 22 program. This study aims to examine the mediating role of career adaptability in the relationship between optimism and subjective well-being longitudinally in two waves. A half-longitudinal design was used for this aim. A half-longitudinal design reveals causal relationships in a two-wave data set (Preacher, 2015). In addition, a cross-lagged panel model (CLPM) was carried out for a half-longitudinal design. At least three measurements are necessary to define a CLPM. However, an indirect effect linking three variables can be predicted using a half-longitudinal design with data collected in only two waves (Cole & Maxwell, 2003; Preacher, 2015, see Deniz et al., 2023, Qu et al., 2021; Satıcı & Satıcı, 2022; Savadori & Lauriola, 2022; Urbanaviciute et al., 2019; Yin et al., 2023 for examples of applications of this model). This model is the most appropriate as we use only two waves of data in the present study. In addition, some goodness of fit indices [χ^2/df , (RMSEA), (CFI), (AGFI), (NFI), and (GFI)] were used when evaluating the half-longitudinal mediation model in this study. The criteria proposed by Schermelleh-Engel et al. (2003) were considered when assessing whether this goodness of fit values was compatible with the data. Finally, mediation analysis was conducted with the AMOS 21 Graphics program.

Results

Preliminary analysis

For preliminary analyses, normality (kurtosis and skewness), reliability (Cronbach's α), and correlation analyses were conducted. This study determined that all variables varied between skewness values (−1.00 and −0.26) and kurtosis values (−0.07 and 1.71). These findings can be considered within the normality limits George and Mallery (2019) suggested. In addition, measurement reliability is high since Cronbach's α coefficient of all variables is above 0.70 (Nunnally, 1979). In addition, a significant and positive relationship was detected between the correlation coefficients of all variables (see Table 1).

Longitudinal measurement model

In this study, the measurement models of time 1 and time 2 were first tested. In this context, CFAs were performed. In the CFA for time 1, it was observed that all standardized factor loadings ranged between −0.52 and 0.90 ($p < 0.001$), while for time 2,

Table 1 Preliminary analysis

Variables	1	2	3	4	5
(1) Optimism T1	1				
(2) Career Adaptability T1	0.67**	1			
(3) Career Adaptability T2	0.58**	0.74**	1		
(4) Subjective Well-Being T1	0.75**	0.62**	0.52**	1	
(5) Subjective Well-Being T2	0.66**	0.56**	0.57**	0.77**	1
Arithmetic mean	74.33	80.48	79.69	30.02	29.03
Standard deviation	12.18	10.25	10.07	14.28	14.65
Kurtosis	0.04	1.71	1.53	−0.07	0.14
Skewness	−0.60	−1.00	−0.71	−0.26	−0.28
α	0.90	0.91	0.91	(SWLS= 0.84, PANAS= 0.75)	(SWLS= 0.88, PANAS= 0.77)

** $p < 0.01$

Table 2 Cross-sectional CFA for time 1 and time 2

CFAs	χ^2/df	GFI	CFI	NFI	AGFI	IFI	TLI
Model 1 (CFA for time 1)	3.50	0.91	0.94	0.92	0.85	0.94	0.92
Model 2 (CFA for time 2)	4.15	0.90	0.93	0.91	0.82	0.93	0.90

they ranged between −0.46 and 0.92 ($p < 0.001$). Additionally, the goodness-of-fit values in CFA for time 1 and time 2 were found to be an acceptable fit (Table 2).

Half-longitudinal mediation model

The main aim of this study is that career adaptability mediates the relationship between optimism and subjective well-being. A cross-lagged panel model for a half-longitudinal design was used to test this aim. The goodness-of-fit values of the cross-lagged panel model ($\chi^2/df = 2.64$, CFI = 0.99, AGFI = 0.93, GFI = 0.99, NFI = 0.99 and RMSEA = 0.08) are compatible with the data (Schermele-Engel et al., 2003). In addition, according to the findings of this study, a one-unit increase in Optimism Time 1 was related to a 0.12 ($t = 2.200$; $p < 0.05$) unit increase in Career Adaptability Time 2. In addition, a one-unit increase in Career Adaptability at Time 1 was related to a 0.13 ($t = 2.542$; $p < 0.05$) unit increase in Subjective Well-being at Time 2 (Figure 1).

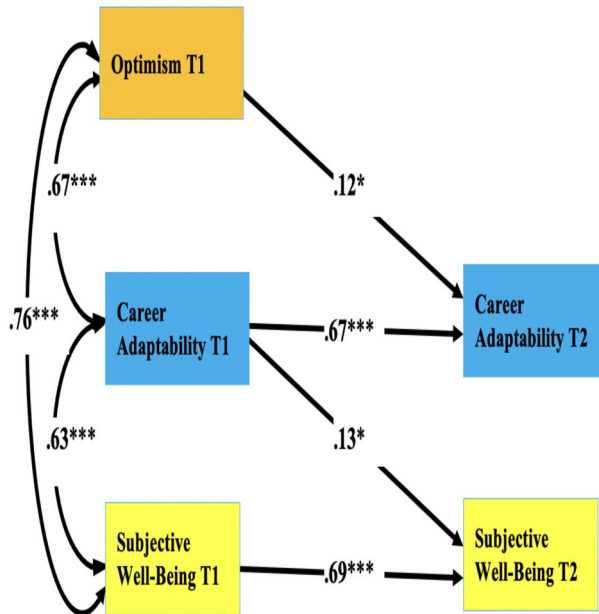


Figure 1 Cross-lagged panel model for a half-longitudinal design for testing the indirect association between optimism and subjective well-being via career adaptability. Note * $p < 0.05$; *** $p < 0.001$; $T1$ time 1, $T2$ time 2

Discussion

This longitudinal study aimed to test the mediating role of career adaptability (adaptability resources) in the relationship between optimism (adaptive readiness) and subjective well-being (adaptation results). Three hypotheses created on the basis of this aim have been confirmed. In addition, the goodness-of-fit values of the cross-lagged panel model is compatible with the data.

In this study, Hypothesis 1 = *Optimism T1 significantly influences Career Adaptability T2* was verified. Studies supporting these research findings are available. For example, Kamila et al. (2023) found that optimism positively predicts career adaptability in university students. Fang et al. (2018) found that optimism is a positive predictor of career adaptability among undergraduate nursing students. Buyukgoze-Kavas (2016) found that optimism positively predicted career adaptability among Turkish university students. Vashisht et al.'s (2023) systematic review and meta-analysis study concluded a positive relationship between optimism and career adaptability. In addition, some studies (Delle & Searle, 2022; Santilli et al., 2017) found that optimism positively correlates with career adaptability. The current study finding is consistent with the theoretical explanations in the meta-analysis study of Rudolph et al. (2017). In this meta-analysis study (Rudolph et al., 2017), optimism was evaluated as a component of the adaptive readiness cluster. Optimism (adaptive readiness) was stated to be positively related to career adaptability (adaptability

resources). Additionally, optimism is a precursor to career adaptability (Rudolph et al., 2017). Similarly, the individuals in this study form positive future expectations with their optimistic attribution styles, making it easier for them to use career adaptability resources. As a result, the current research finding confirmed the theoretical explanations in the meta-analysis study of Rudolph et al. (2017).

In this study, Hypothesis 2= *Career Adaptability T1 significantly influences Subjective Well-Being T2* was accepted. Some studies are similar to the current research findings. In other words, Tian et al. (2021) found that career adaptability was a positive predictor of subjective well-being in the employee sample. Eryılmaz and Kara (2019) state that career adaptability positively predicts subjective well-being in Turkish teachers. Kirdök and Bölükbaşı (2018) found that career adaptability positively predicted subjective well-being in Turkish university senior students. In addition, some studies reveal a positive relationship between career adaptability and subjective well-being (Konstam et al., 2015; Ramos & Lopez, 2018; Ran et al., 2023; Takao & Ishiyama, 2021; Tokar et al., 2020). The current study finding can be evaluated using the career construction theory (Savickas, 2005). According to career construction theory, those with high career adaptability are suggested to have greater meta-competence and more psychosocial resources to adapt to and successfully overcome career transitions, tasks, and changes (Savickas, 2005). This psychosocial resource also positively affects individuals' adaptation results (subjective well-being) (Tokar et al., 2020). The individuals in this study took their subjective well-being to a positive point by using their psychosocial resources (career adaptability). As a result, the current study finding was supported by the career construction theory (Savickas, 2005).

In this study, Hypothesis 3= *Career Adaptability has a longitudinal mediating role in the relationship between Optimism and Subjective Well-Being* was verified. This study's finding can be explained by the career construction model of adaptation (CCMA). CCMA comprises components such as (adaptive readiness, adaptability resources, and adaptation results). This study evaluated optimism as adaptive readiness on the basis of previous studies (Perera & McIlveen, 2014; Rudolph et al., 2017). Previous studies define career adaptability as adaptability resources (Green et al., 2023; Kara et al., 2022). Finally, subjective well-being was used as adaptation results on the basis of previous studies (Rudolph et al., 2017; Tokar et al., 2020). In addition, the CCMA emphasizes that those who are ready and willing to change (e.g., optimism) tend to have more psychological resources (e.g., career adaptability), resulting in higher levels of positive adaptation results (i.e., subjective well-being) (Zhang et al., 2023). Therefore, this study finding was confirmed by the Career Construction Model of Adaptation (CCMA).

Research limitations/practical implications

In this longitudinal study, the CCMA has proven valid in Turkish culture. This study was designed in a two-wave half-longitudinal design. In the future, a three-wave longitudinal study can be conducted with the same variables. This study is the first to empirically test the validity of the CCMA with a longitudinal model in a sample of

university students in Turkish culture. Different components of CCMA in Turkish culture can then be tested in a longitudinal study in different samples. This study obtains a subjective well-being model for university students through cross-lagged panel analysis. In the following processes, the components of the model obtained in this research (optimism and career adaptability) can be used in quasi-experimental research to increase university students' subjective well-being.

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Data availability The dataset is available upon request.

Declarations

Conflict of interest The author declares that there is no conflict of interest.

Ethical approval Ethics Committee approval was obtained from the [Omitted] University Social and Human Sciences Ethics Committee (E-16498365-050.01.04-2300126228). All stages of the study were conducted according to the Declaration of Helsinki.

Informed consent All participants provided informed consent for the data to be published and to participate in the present study.

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