

ORIGINAL ARTICLE

# Associations Between Career Decision-Making Difficulties, Maladaptive Limitedness Schemas, Sleep Quality, and Circadian Preferences Among Turkish College Students

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## ABSTRACT

The present study investigated the relations among decision-making difficulties, maladaptive limitedness schemas, sleep quality, and circadian preferences in a sample of 311 Turkish college students. As expected, the associations between career decision-making difficulties, as measured by the Career Decision-Making Difficulties Questionnaire (CDDQ), and poor sleep quality were significant, but the connections were small. Pearson correlations of poor sleep quality with career decision-making difficulties, including Lack of Information and Difficulties related to Inconsistent Information sub-scales, and CDDQ total scores, ranged from 0.19 to 0.20. On the other hand, in the multiple regression analyses we found that dysfunctional thinking, as measured by the Limitedness Schemas Questionnaire (LSQ), significantly contributed to all three sub-scales and total scores of the CDDQ. Implications of these findings are discussed.

**Keywords:** Career problem, sleep, dysfunctional thinking, career counseling, career indecision

## INTRODUCTION

Career decisions are prevalent and made at different points in the life cycle. Career decision-making difficulties are integral part of the career problem which may result in a failure in career process or making decisions less than optimal (Amir & Gati, 2006; Gati, Krausz, & Osipow, 1996). Career decisions are also at the core of the personal identity, and thus determine the personal life style. On the basis of the literature, career decision-

making difficulties had significant associations with a number of psychological constructs including poor career decision-making self-efficacy (P. A. Creed & Yin, 2006; Morgan & Ness, 2003), occupational barriers (P. A. Creed & Yin, 2006), low androgenity (Morgan & Ness, 2003), career indecisiveness (Albion & Fogarty, 2002; Lancaster, Rudolph, Perkins, & Patten, 1999; Mau, 2001), dysfunctional career thoughts (Kleiman et al., 2004), anxiety (Lancaster et al., 1999), personality traits and low emotional intelligence (Di Fabio & Palazzeschi, 2009; Di Fabio, Palazzeschi, & Bar-On, 2012; Di Fabio, Palazzeschi, Levin, & Gati, 2015).

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### *Career decision-making process in counseling*

Gati et al. (1996) proposed a model of career decision-making predicated in stages of career decision-making, career barriers, and the effects of career

difficulties may have been faced in the process. The taxonomy implicated three major components relevant to career decision-making difficulties: Readiness, Lack of Information, and Difficulties related to Inconsistent Information. The Career Decision-Making Difficulties Questionnaire (CDDQ) is developed to empirically test the suggested model of difficulties in making a career decision (Gati et al., 1996).

Early conceptualizations of the career decision model based on decision theory purposed a three stage intervention rationale to improve career decision-making process: *Prescreening, In-depth exploration, and Choice* (Gati & Asher, 2001). Advances in career decision model placed more emphasis on career decision-making difficulties in career problem due to the fact that people with less indecisiveness problems are thought to be more benefited from career-related interventions (Amir & Gati, 2006). In further elaboration of the decision-making based on career intervention model, locating career difficulties is one of the first stage interventions and a four stage interpretation procedure was proposed to locate the focus of client's career decision-making difficulties. These four stages of interpretation includes evaluation of 1) the *credibility* of a client's responses, 2) *differentiation* on the dimensions of career difficulties assessed by the CDDQ, 3) categorizing the client into categories of *salient, moderate or negligible* career decision-making difficulties, and 4) determining the level of confidence in the feedback (Amir, Gati, & Kleiman, 2008; Gati & Amir, 2010). One of more recent attempts to advance the career decision-making process refined and attested a six-phase model: a) becoming more aware of career decision-making, b) generating alternative career choices based on one's interests, c) compromising the alternatives to a more judicious number for an in-depth exploration, d) making a career decision among alternatives, and e) confirming and commitment to the choice (Hirschi & Laege, 2007).

#### **Career decision-making difficulties: trait or state variable**

Career indecisiveness represents pervasive, severe, and chronic problems in making career decisions. People with undecided career status had relatively stable

patterns of career decision-making difficulties over a three years time period (Gati, Asulin-Peretz, & Fisher, 2012). Germeijs, Verschueren, and Soenens (2006) asserted that, rather than a state feature, career indecisiveness should be considered as a trait factor due to the high temporal stability of the construct over a one year time period. Less confidence in one's choice and less strivings to make a career decision were tentative predictors of sustained career decision-making difficulties among college students (Saka & Gati, 2007).

#### **Negative thinking style and career decision making difficulties**

A tendency to negative thinking has long been demonstrated to be associated with career indecisiveness in a myriad of surveillances. One third of the variance of career decision-making difficulties was explained by irrational beliefs relevant to career choice, including perfectionism, external conflict, faulty inference, generalization and self-esteem among Turkish high school students (Bacanli, 2012). In a sample of Turkish high school students, career indecisiveness was tied to negativistic appraisals in regard to career and work experience; contrarily, intrinsic satisfaction, having a sense of responsibility, persisting in the face of uncertainty, and giving a good try by working hard were inverse predictors of career indecisiveness (Akkoç, 2012). Negative career thinking was significantly associated with a sense of self-incoherence, both of these constructs significantly contributed to career indecisiveness as well as to an inclination to a general indecisiveness (Austin, Dahl, & Wagner, 2010). Locus of control, self-esteem and irrational beliefs were differentially associated with various dimensions of personal indecisiveness that low self-esteem, external locus of control and vulnerability to irrational thinking contributed to exploratory indecisiveness while external locus of control was the only determinant of impetuous indecisiveness (Bacanli, 2006). Undergraduates who had greater goal instability reported significantly greater negative career thoughts, dissatisfaction with career choice, career tension, and low academic performance. Goal stability was suggested to be the crux of readiness in career decision-making

(Bertoch, Lenz, Reardon, & Peterson, 2014). Significant linkage of vocational self-concept crystallization with occupational indecisiveness was observed among college students (Landine, 2013).

Briefly speaking, there has been a vast amount of solid evidence with respect to the linkages of career decision-making difficulties to dysfunctional career thinking and dimensions of self-concept which have, to date, been consistently replicated in a number of studies conducted among various populations in different cultures (Gadassi, Gati, & Wagman-Rolnick, 2013; Hamamcı & Çoban, 2007; Jamali, Araqi, & Kalantarkousheh, 2015; Kleiman et al., 2004; Marcionetti, 2014; Oztemel, 2014; Öztemel, 2012; Perçe, 2013; Restubog, Fiorentino, & Garcia, 2010; Saka, Gati, & Kelly, 2008; Sidiropoulou-Dimakakou, Mylonas, Argyropoulou, & Tampouri, 2012).

Career indecision is a strong correlate of personal indecisiveness (Büyükgöze-Kavas, 2012). Using a structural meditational analysis approach, career decision state encompassing dissatisfaction with career choice and career indecision was directly predicted by career and life stress as well as indirectly mediated through negative career thoughts (Bullock-Yowell, Peterson, Reardon, Leierer, & Reed, 2011). In another structural modeling study of career decision, authors reported significant relations between career decision state and neuroticism mediated through negative thinking (Bullock-Yowell et al., 2015). As such, connections of the lack of information, a component of career decision-making difficulties, was found to be directly and indirectly through negative career thoughts and feelings predicted by neuroticism personality trait (Kelly & Shin, 2009).

### ***Gender differences***

In a representative sample of high school sample consisting of 1760 pupils, Bacanlı, Eşici, and Özünlü (2013) demonstrated that scores on Readiness, Lack of Information and Difficulties related to Inconsistent Information subscales of the CDDQ were lower in favor of girls relative to boys and higher grade girls scored significantly lower scores on these subscales in comparison to younger girls in low grades. As the socio-economical class and the importance of the career decision increased

the severity of decision-making difficulties decreased. In a comparative study between United States and Turkish high school students, female students were the disadvantageous in general and students in the United States reported greater career decision-making problems relative to Turkish students (Tagay, 2014).

### ***Parental attitudes***

Regarding parental attitudes, high school students whose parents were more authoritative or authoritarian were determined in their career path in comparison to youths with neglectful and indulgent parents. The relationship between parental attachment and decisiveness was curvilinear rather than linear (Cenkseven-Onder, Kirdok, & Isik, 2010). Perceived parental expectations and perceived self-performance as well as cultural value conflicts exacerbated the career decision-making difficulties among Chinese college students (Leung, Hou, Gati, & Li, 2011). Contrarily, parental attitudes could not be found to be associated with career decision difficulties; whereas personal/social guidance needs, educational guidance needs and career guidance needs indicated greater career decision-making problems (Kesici, Hamarta, & Arslan, 2008). Perceived social support from teachers was reported to be a significant antecedent of reported difficulties regarding career decision-making among Turkish 9 to 11 grades (Öztemel, 2013).

### ***Personality-related trait features and career making problems***

Personal residency was predictive of alleviated career decision-making difficulties through facilitating overcoming the problems during the process. On the contrary, procrastination was the most unproductive strategy in response to career problems that undermines and delays making a decision to use personal sources in taking an action (Shin & Kelly, 2015). Perceived control on career decision alleviated career indecision and career anxiety students. Pupils in professional faculties reported less career-related problems compared to counterparts probably due to a sense of control on their career (Daniels, Stewart, Stupnisky, Perry, & LoVerso, 2011).

Similar findings in regard to students enrolled in faculty of education were reported in Turkey (Akgün & Karaca, 2012).

From the point of an attachment view, anxious attachment significantly indirectly contributed to career indecision in which the associations were fully mediated by career choice anxiety and career-choice pessimism (Braunstein-Bercovitz, Benjamin, Asor, & Lev, 2012).

Emotional and personality-related career decision-making difficulties were significant correlates of low self-esteem, exploratory and impetuous indecisiveness, and neuroticism. Consciousness and extraversion were negative correlates of career decision-making difficulties (Oztemel, 2014). Career decision-making difficulties were tied to greater external locus of control, neuroticism, agreeableness, perfectionism and need for cognitive closure, and decreased career decision self-efficacy, extraversion, and openness to experience (Gati et al., 2011). In a meta-analysis of 20 studies with respect to the relations between five-factor model personality traits and career decision-making difficulties, Martincin and Stead (2015) concluded that neuroticism was the prominent determinant of career decision problems contrarily Agreeableness, Conscientiousness, Extraversion, and Openness to experience personality traits were inverse correlates of career indecisiveness.

### **Career decision-making difficulties and well-being**

In recent years, scholars have underscored a need to a holistic approach in which career counseling needs and mental health interventions are combined together (Blustein, 2008; Lenz, Peterson, Reardon, & Saunders, 2010). According to cognitive information processing approach, solving career problems through career counselling refers to helping clients progress along a continuum from a state of an existing state of indecision which may entail confusion, anxiety, depression, and an external locus of control toward a more desired state (Peterson, Sampson Jr, Lenz, & Reardon, 2002).

Research has shown that life and job satisfaction are significantly connected with each other (A. Doğan, Deniz, Odabas, Özyeşil, & Özgirgin, 2012; Yeşilyaprak & Boysan, 2015). More specifically, life satisfaction is associated with

self-esteem in relation to decision-making and decision-making styles (Deniz, 2004, 2006). Empirical evidence has consistently provided support with the significant relations between career decision-making difficulties and depressive symptoms. University students who made a career decision were less depressive than pupils who were undecided (Rottinghaus, Jenkins, & Jantzer, 2009). Self-concept and identity-related career decision-making difficulties were predictive of depressive symptomatology. Specifically for men, but not among women, crystallization of career preferences was preventive from depressive symptoms (Gadassi, Waser, & Gati, 2015). Career indecision and dysfunctional career thoughts significantly contributed to depressive symptomatology (Walker & Peterson, 2012).

### **Current study**

Career decisiveness has monumental importance of well-being and social achievement that those youths who were decided in their career path prospectively reported higher levels of career maturity, greater career decision-making efficiency, higher self-esteem, less career indecision, and attenuated levels of panic compared to undecided respondents (P. Creed, Prideaux, & Patton, 2005). Moreover, it has been well-established that majority of people are seeking help from guidance and counseling services in dealing with career problems particularly career indecision and career difficulties in Turkey (Bacanlı et al., 2013; Çakır, 2004; H. Doğan & Bacanlı, 2012; Oztemel, 2013). Therefore assessment of career difficulties has of monumental importance to fine-tune career counseling interventions. Different from other screening tools with regards to career problems, the CDDQ reflects an extensive refinement of theoretical considerations encapsulating the complex pattern of career difficulties (Bacanlı, 2015; Gati & Saka, 2001a, 2001b).

Given the previous depression literature there has been a vast body of research documenting the significant relations between depressive symptomatology and sleep problems (Gulec et al., 2011; Selvi et al., 2010). Although the significant linkages of career decision-making difficulties and dysfunctional thinking patterns related to

career problems to depressive symptomatology have been well-established, tentative associations with sleep and circadian preferences have received no attention so far.

Circadian preferences inform a tendency for an individual to work, to sleep and active in functioning at particular times during a 24-hour period. Circadian preferences are conceptualized as a physiological construct along a continuum with two extremes: eveningness and morningness (Natale & Cicogna, 2002; Tonetti, 2007). Individuals with eveningness circadian preference had substantially shorter sleep duration during weekdays and more sleep disturbances in comparison to individuals with morningness preferences (Harada, Morikuni, Yoshii, Yamashita, & Takeuchi, 2002; Taillard, Philip, & Bioulac, 1999; Tavernier & Willoughby, 2014; Tzischinsky & Shochat, 2011). Individuals with eveningness diurnal preferences are more vulnerable to depression (Kim et al., 2010; Merikanto et al., 2013; Muller, Kundermann, & Cabanel, 2016).

In one of preliminary surveillances of connections between decision-making styles and circadian preferences, Tonetti et al. (2016) observed that eveningness significantly contributed to avoidant and spontaneous decision-making styles. In a more previous study, it was found low morningness was significantly associated with avoidant procrastination (Diaz-Morales, Ferrari, & Cohen, 2008). Additionally, sleep deprivation causes severe impairment in decision-making (Harrison & Horne, 2000; Killgore, Balkin, & Wesensten, 2006). Given the previous evidence, there has been a lack of interest in relations between sleep and career problems. In this study, we aimed to investigate the connections of sleep quality, circadian preferences, dysfunctional thinking patterns in terms of limitedness schemas questionnaire with career decision-making difficulties.

## METHOD

### Participants and procedure

Three hundred eleven undergraduates enrolled in various programs at Erzincan University participated in the study. A set of psychometric measures including the

Limitedness Schemas Questionnaire, Career Decision-Making Difficulties Questionnaire, Morningness-Eveningness Questionnaire, and Pittsburgh Sleep Quality Index along with a socio-demographic questionnaire was administered by researchers on only one occasion on to the participants. A brief description of the study was made and written consent was taken prior to the scale was administered. After providing the participants with information about the study and receiving written consent, survey form was administered to respondents. One hundred seventy participants were females (54.66%). Age was ranging from 17 to 25, and the mean age of the sample was 20.10 ( $SD \pm 1.75$ ).

### Psychometric measures

#### *Career Decision-Making Difficulties Questionnaire (CDDQ)*

The 34-item Career Decision-Making Difficulties Questionnaire (CDDQ) a shortened version derived from the 44-item long form, was administered to participants (Gati & Saka, 2001a). Each item is rated on a 9-point Likert scale (1=does not describe me, and 9=describes me well). Two items of the scale is for validity check and the remained 32 items measures career difficulties in ten categories subsumed in three supreme categories representing stages of career counseling in relation to making career decisions. Three second-order factors include readiness (lack of motivation, general indecisiveness, and dysfunctional beliefs), lack of information (about the stages of career decision-making process, self, occupations, and ways of obtaining additional information), and inconsistent Information (unreliable information, internal conflicts, and external conflicts). It was reported adequate internal reliability for the CDDQ ( $\alpha=0.91$  for the overall scale,  $\alpha=0.63$  for lack of readiness,  $\alpha=0.88$  for lack of information and  $\alpha=0.87$  for inconsistent information). Turkish version of the CDDQ was demonstrated to have adequate psychometric properties by Bacanlı (2015). The Lack of Information, Inconsistent Information, Lack of Readiness sub-scales had internal consistency of  $\alpha=0.90$ ,  $\alpha=0.84$ , and  $\alpha=0.45$ , respectively (Bacanli, 2015).

The construct, convergent and divergent validity of

paper-pencil and internet versions of the scale have extensively studied in various psychometric studies and generally it has been reported good psychometric properties for the CDDQ (Albion & Fogarty, 2002; Bacanlı et al., 2013; Gati & Saka, 2001a, 2001b; Kelly & Lee, 2002; Kleiman & Gati, 2004; Kleiman et al., 2004; Lancaster et al., 1999; Mau, 2001; Morgan & Ness, 2003; Tien, 2005) to be interpreted as the concept of career difficulties is a multidimensional psychological construct in nature. Three factor structure for the CDDQ have been generally confirmed (Bacanli, 2015; Gati & Saka, 2001a; Kleiman et al., 2004) and only several studies suggested a different factor structure for the screening tool (Albion & Fogarty, 2002; P. A. Creed & Yin, 2006). However, most of the psychometric investigations of the CDDQ reported fairly low internal consistency less than 0.70 for the subscales of lack of readiness main component (Bacanli, 2015; Gati & Saka, 2001a, 2001b; Lancaster et al., 1999; Leung et al., 2011; Mau, 2001; Osipow & Gati, 1998; Tien, 2005; Zhou & Santos, 2007). Also lack of readiness subscales had low convergent validity in relation to associated variables (Kleiman et al., 2004; Lancaster et al., 1999; Mau, 2001).

#### **Limitedness Schemas Questionnaire (LSQ)**

A 30-item self-report scale designed to assess dysfunctional thinking patterns encompassing limitedness about the world, negativistic expectations about interpersonal relations, stability of these negativistic attributions, and interconnectedness of events. The scale had good reliability with a internal consistency of 0.89 and validity with significant correlations with depression, anxiety, learned helplessness and low self-esteem (Boysan, Besiroglu, Kara, Kayri, & Keskin, 2008).

#### **Morningness-Eveningness Questionnaire (MEQ)**

The MEQ consists of 19 self-report items designed to assess individual differences in chronobiology (Horne & Ostberg, 1976). Preferences in sleep and rise times, and the degree to which respondents are active and alert at certain times of day are assessed. The scale is the most widely used screening tool in evaluation of diurnal preferences. Turkish version of the scale had good validity

and reliability (Agargun, Cilli, Boysan, & Selvi, 2007).

#### **Pittsburgh Sleep Quality Index (PSQI)**

A 19-item self-report questionnaire designed to assess sleep quality and disturbances over a one month time interval (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). The PSQI yields a score ranging between 0 and 21. The Turkish version of the psychometric tool was demonstrated to have good reliability and validity (Ağargün, Kara, & Anlar, 1996).

#### **Statistical Analysis**

Initially, we computed sample descriptive statistics. We run zero-order correlation analyses. Then, we run four multiple regression analyses in which subscale and total scores of the CDDQ were dependent variables. The significance threshold was held at  $p < 0.05$ .

## **RESULTS**

#### **Correlation analyses between psychological variables**

We run Pearson product-moments correlation coefficients between psychological variables. Considering bivariate relations, sleep quality was significantly associated with Lack of Information ( $r = 0.19$   $p < 0.01$ ) and Difficulties related to Inconsistent Information ( $r = 0.19$   $p < 0.01$ ) sub-scales, and overall scores of the CDDQ ( $r = 0.20$   $p < 0.01$ ). Eveningness circadian preferences was weakly correlated with Difficulties related to Inconsistent Information ( $r = -0.13$   $p < 0.05$ ). Means, standard deviations and correlation coefficients are presented in Table 1.

#### **Multiple regression analyses**

We run four multiple stepwise regression analyses, in which subscales and overall scores of the CDDQ were dependent variables. In the regression models age, gender, income, paternal education, maternal education, the Limitedness Schemas Questionnaire, Morningness-Eveningness Questionnaire scores and Pittsburgh Sleep Quality Index were predictors.

In the first regression analysis, independent variables were regressed onto the Career Decision Making

**Table 1. Pearson product-moments correlation coefficients**

		1	2	3	4	5	6	7
1. Readiness	r	1						
	N	311						
2. Lack of Information about	r	0.288**	1					
	N	311	311					
3. Difficulties related to Inconsistent Information	r	0.302**	0.739**	1				
	N	311	311	311				
4. Career Decision Making Difficulties Questionnaire	r	0.595**	0.894**	0.878**	1			
	N	311	311	311	311			
5. Limitedness Schemas Questionnaire	r	0.225**	0.276**	0.319**	0.342**	1		
	N	311	311	311	311	311		
6. Morningness-Eveningness Questionnaire	r	-0.014	-0.049	-0.132*	-0.084	-0.312**	1	
	N	311	311	311	311	311	311	
7. Pittsburgh Sleep Quality Index	r	0.112	0.185**	0.188**	0.204**	0.334**	-0.258**	1
	N	288	288	288	288	288	288	288
Mean		4.64	3.18	3.19	3.64	50.12	52.48	7.17
Standard Deviation		1.33	1.68	1.68	1.27	21.32	8.07	2.02

Note. \*:p<0.05; \*\*:p<0.01

**Table 2. Regression analysis of Career Decision-Making Difficulties Questionnaire total scores**

	R <sup>2</sup>	B	S.E.	$\beta$	t	P	Tolerance	VIF
	0.140							
Age		-0.032	0.044	-0.042	-0.724	0.470	0.897	1.115
Gender		-0.144	0.151	-0.056	-0.952	0.342	0.891	1.123
Income		-0.109	0.154	-0.041	-0.708	0.479	0.916	1.092
Paternal Education		0.084	0.072	0.072	1.165	0.245	0.803	1.246
Maternal Education		-0.083	0.110	-0.047	-0.755	0.451	0.809	1.236
Limitedness Schemas Questionnaire		<b>0.019</b>	<b>0.004</b>	<b>0.313</b>	<b>4.966</b>	<b>&lt;0.001</b>	<b>0.775</b>	<b>1.290</b>
Morningness-Eveningness Questionnaire		0.006	0.010	0.039	0.641	0.522	0.824	1.214
Pittsburgh Sleep Quality Index		0.074	0.038	0.117	1.924	0.055	0.838	1.194

Note. B= Unstandardized regression coefficient; S.E.= Standard Error;  $\beta$  = Standardized regression coefficient; VIF= Variance inflation factor; significant statistics are boldfaced.

Difficulties Questionnaire total scores. The regression model explained 14% of the variance of dependent variable. Model F value was significant ( $F(8, 279)=5.655$   $p<0.01$ ). Of the predictors, only dysfunctional limited schemas significantly contributed to Career Decision Making Difficulties Questionnaire total scores ( $\beta=0.31$   $t=4.966$   $p<0.001$ ). Results are given in Table 2 and partial regression plot was indicated in Figure 1.

In the second regression analysis, independent variables were regressed onto Readiness sub-scale scores. The regression model explained 7% of the variance of dependent variable. Model F value was significant ( $F(8, 279)=2.493$   $p<0.05$ ). According to results, only dysfunctional limited schemas significantly contributed to Readiness scores ( $\beta=0.24$   $t=3.674$   $p<0.001$ ). Results are presented in Table 3 and partial regression plot was indicated in Figure 2.

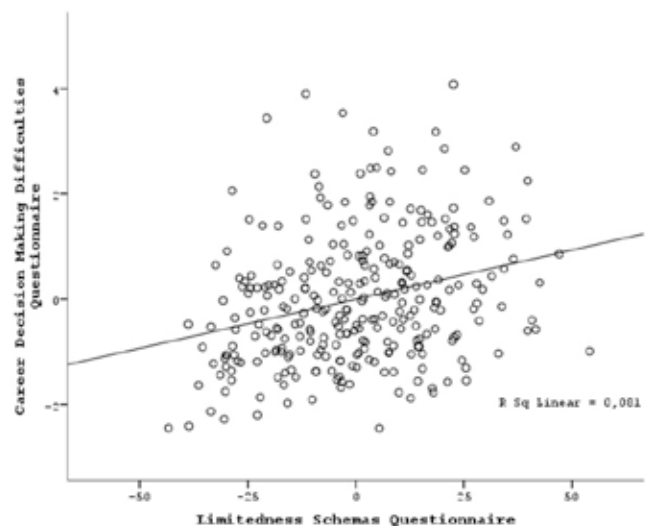


Figure 1: The partial plot for the regression of the Limitedness Schemas Questionnaire scores onto the Career Decision-Making Difficulties Questionnaire (CDDQ) total scores.

In the third regression analysis, independent variables were regressed onto Lack of Information sub-scale scores. The regression model explained 10% of the variance of dependent variable. Model F value was significant ( $F(8, 279)=3.784$   $p<0.001$ ). Results indicated that only

dysfunctional limited schemas significantly contributed to Lack of Information sub-scale scores ( $\beta=0.24$   $t=3.759$   $p<0.001$ ). Results are presented in Table 4 and partial regression plot was indicated in Figure 3.

In the final regression analysis, independent variables

**Table 3. Regression analysis of Readiness sub-scale scores**

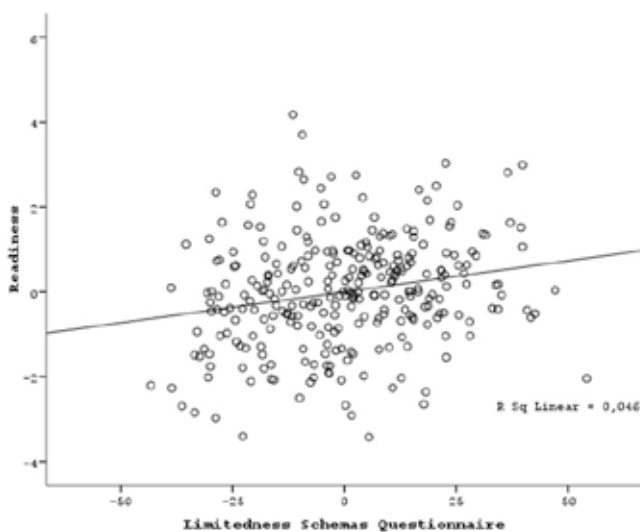
	R <sup>2</sup>	B	S.E.	$\beta$	t	P	Tolerance	VIF
	0.067							
Age		-0.067	0.046	-0.088	-1.448	0.149	0.897	1.115
Gender		-0.086	0.160	-0.033	-0.535	0.593	0.891	1.123
Income		-0.006	0.163	-0.002	-0.037	0.971	0.916	1.092
Paternal Education		0.050	0.076	0.042	0.655	0.513	0.803	1.246
Maternal Education		0.031	0.117	0.017	0.263	0.792	0.809	1.236
Limitedness Schemas Questionnaire		<b>0.015</b>	<b>0.004</b>	<b>0.241</b>	<b>3.674</b>	<b>&lt;0.001</b>	<b>0.775</b>	<b>1.290</b>
Morningness-Eveningness Questionnaire		0.008	0.010	0.048	0.755	0.451	0.824	1.214
Pittsburgh Sleep Quality Index		0.030	0.041	0.047	0.745	0.457	0.838	1.194

Note. B= Unstandardized regression coefficient; S.E.= Standard Error;  $\beta$  = Standardized regression coefficient; VIF= Variance inflation factor; significant statistics are boldfaced.

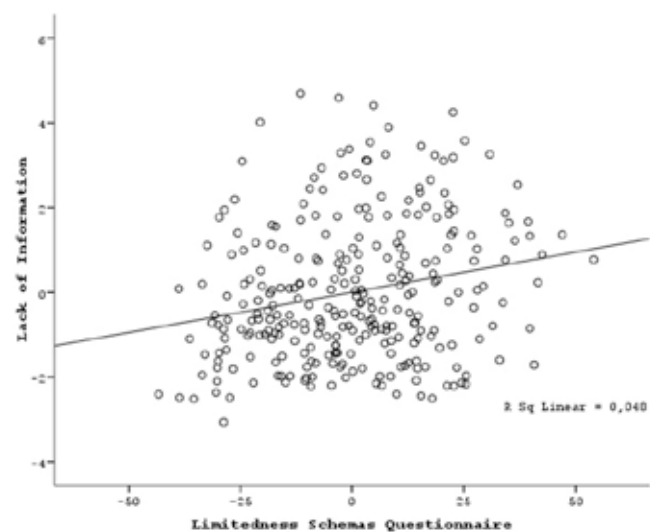
**Table 4. Regression analysis of Lack of Information sub-scale scores**

	R <sup>2</sup>	B	S.E.	$\beta$	t	P	Tolerance	VIF
	0.098							
Age		-0.028	0.059	-0.029	-0.480	0.631	0.897	1.115
Gender		-0.097	0.203	-0.029	-0.479	0.632	0.891	1.123
Income		-0.129	0.207	-0.037	-0.626	0.532	0.916	1.092
Paternal Education		0.090	0.097	0.059	0.933	0.351	0.803	1.246
Maternal Education		-0.197	0.148	-0.084	-1.333	0.184	0.809	1.236
Limitedness Schemas Questionnaire		<b>0.019</b>	<b>0.005</b>	<b>0.243</b>	<b>3.759</b>	<b>&lt;0.001</b>	<b>0.775</b>	<b>1.290</b>
Morningness-Eveningness Questionnaire		0.012	0.013	0.055	0.877	0.381	0.824	1.214
Pittsburgh Sleep Quality Index		0.101	0.052	0.122	1.960	0.051	0.838	1.194

Note. B= Unstandardized regression coefficient; S.E.= Standard Error;  $\beta$  = Standardized regression coefficient; VIF= Variance inflation factor; significant statistics are boldfaced.



**Figure 2: The partial plot for the regression of the Limitedness Schemas Questionnaire scores onto Readiness subscale of the CDDQ scores.**



**Figure 3: The partial plot for the regression of the Limitedness Schemas Questionnaire scores onto Lack of Information subscale of the CDDQ scores.**



Table 5. Regression analysis of Difficulties related to Inconsistent Information sub-scale scores

	R <sup>2</sup>	B	S.E.	$\beta$	t	P	Tolerance	VIF
	0.128							
Age		0.000	0.058	0.000	-0.007	0.994	0.897	1.115
Gender		-0.258	0.201	-0.076	-1.287	0.199	0.891	1.123
Income		-0.187	0.204	-0.054	-0.917	0.360	0.916	1.092
Paternal Education		0.110	0.095	0.072	1.153	0.250	0.803	1.246
Maternal Education		-0.060	0.146	-0.025	-0.410	0.682	0.809	1.236
Limitedness Schemas Questionnaire		<b>0.022</b>	<b>0.005</b>	<b>0.284</b>	<b>4.471</b>	<b>&lt;0.001</b>	<b>0.775</b>	<b>1.290</b>
Morningness-Eveningness Questionnaire		-0.002	0.013	-0.008	-0.123	0.902	0.824	1.214
Pittsburgh Sleep Quality Index		0.085	0.051	0.101	1.661	0.098	0.838	1.194

Note. B= Unstandardized regression coefficient; S.E.= Standard Error;  $\beta$  = Standardized regression coefficient; VIF= Variance inflation factor; significant statistics are boldfaced.

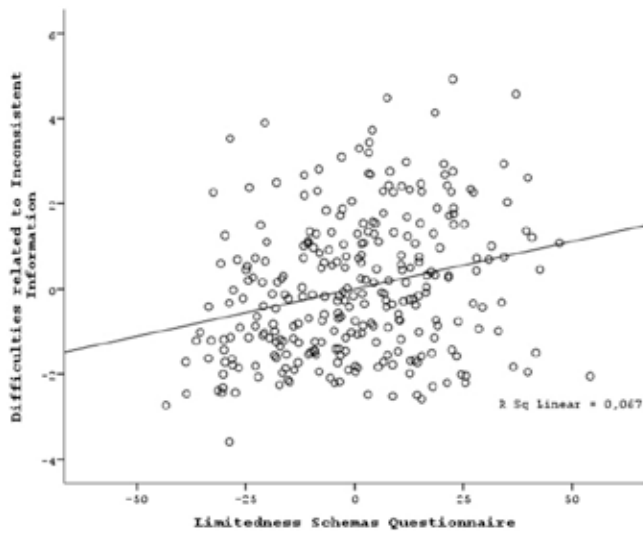


Figure 4: The partial plot for the regression of the Limitedness Schemas Questionnaire scores onto Difficulties related to Inconsistent Information subscale of the CDDQ scores.

were regressed onto Difficulties related to Inconsistent Information sub-scale scores. The regression model explained 13% of the variance of dependent variable. Model F value was significant ( $F(8, 279)=5.137 p<0.01$ ). Results indicated that only dysfunctional limited schemas significantly contributed to Difficulties related to Inconsistent Information sub-scale scores ( $\beta=0.28 t=4.471 p<0.001$ ). Results are presented in Table 5 and partial regression plot was indicated in Figure 4.

## DISCUSSION

The aim of the current study was to investigate the relations between career decision-making difficulties

measured by the 34-item the Career Decision Making Difficulties Questionnaire (CDDQ; Gati & Saka, 2001a), dysfunctional limitedness schemas, sleep quality and circadian preferences on the data collected from Turkish college students. We carried out zero-order correlational analyses to unpack the relations between variables that poor sleep quality indicated greater levels of Lack of Information, Difficulties related to Inconsistent Information, and Career Decision Making Difficulties Questionnaire total scores. Additionally, dysfunctional limitedness schemas were significantly associated with subscale and total scores of the CDDQ scores. In the regression analyses, it was found that only dysfunctional thinking was predictive of career decision-making difficulties.

Research has consistently found people at an earlier age have greater career difficulties than older people (Gati et al., 1996; Morgan & Ness, 2003; Sovet, Tak, & Jung, 2015; Tien, 2005). This may be due to the less experience in career decision making and career-related practices including education and work. Associations between gender and career-decision making difficulties have revealed a pattern of inconsistencies. Some of studies reported unsubstantial differences in career-decision making difficulties between genders (Gati, Osipow, Krausz, & Saka, 2000; Koumoundourou, Tsaousis, & Kounenou, 2011; Osipow & Gati, 1998). Bacanlı et al. (2013) observed a significant interaction between gender and grade among 1760 high school students that girls from upper grades had significantly lower career difficulties relative to boys from lower grades. In a cross-cultural investigation of career decision making difficulties,

British female undergraduates had significantly greater career difficulties on three main domains and total scores than British males; whereas no significant gender difference was detected among Chinese participants (Zhou & Santos, 2007). Among Turkish undergraduates, interaction effect between grade and gender was not significant whether gender *per se* had a significant main effect (Bacanlı, 2015). We could not find any gender and age differences in total and subscales scores of the Career Decision-Making Questionnaire.

Consistent with the previous literature (Gadassi et al., 2013; Hamamcı & Çoban, 2007; Jamali et al., 2015; Kleiman et al., 2004; Marcionetti, 2014; Oztemel, 2014; Öztemel, 2012; Perçe, 2013; Restubog et al., 2010; Saka et al., 2008; Sidiropoulou-Dimakakou et al., 2012), we found that dysfunctional thinking was the most potent predictor of career decision-making problems. In this study, rather than career-related dysfunctional thinking, we utilized a more general conceptualization of sense of limitedness with respect to dysfunctional thinking patterns. In the literature it has been demonstrated that limitedness schemas has significant associations with a myriad of vulnerability factors and negative psychological outcomes including maladaptive perfectionism (Kağan, 2011), and depression (Kayri & Boysan, 2008). In this study, facets of career decision problems were significantly associated with limitedness schemas. Moreover, sleep problems were accompanying to career related decision-making difficulties, a preliminary finding of this study.

This study has several limitations. First of all this study was conducted in a relatively small group of college students. Finding should be replicated in larger samples including observations in younger and adult respondents with respect to the variables addressed here. Second, a cross-section design was adopted in this study. In a

longitudinal design study, findings could have differentiated from the current results.

Career counseling is a dynamic applied field with many facets in practice (Yeşilyaprak, 2012). Career indecisiveness is a significant component of career problem that should be taken into consideration during career interventions. Our findings should be interpreted along with Bacanlı (2015) that the Turkish version of the CDDQ may be utilized in a thorough assessment of categories of career difficulties among high school students and undergraduates. The CDDQ provides an opportunity to easily screen community sample for identification of groups of students who have career problems and counseling needs. The screening tool makes it possible to follow-up outcomes of career interventions. Furthermore, there have been several attempts to develop more influential interventions in regard to career decision-making difficulties in the literature (Amir, Gati & Kleiman, 2008; Gati & Amir, 2010; Gati & Asher, 2001; Hirschi & Laege, 2007). Although there has been a large consensus on the fact that career counselling and mental health related interventions should be used in combination (e.g., Lenz et al., 2010), all of these interventions mentioned above have a central focus on decision making process. Drawing from the current findings, to the best of our experience, integrating therapeutic techniques gleaned from cognitive-behavioral therapies would be beneficial (Beck & Beck, 2011). Affect regulation training (Berking & Whitley, 2014; Linehan, 2014) incorporated with sleep-related interventions (Perlis, Jungquist, Smith, & Posner, 2008; Sateia & Buysse, 2010) would provide more promising outcomes in career counseling. The earlier ages these career interventions are applied, the more positive outcomes would be achieved (Nazli, 2007).

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