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The effect of psychological flexibility and intolerance of uncertainty on decision-making styles in university students

Ebru Talibe Turgut [a] Makbule Kalı Soyer [b]

[a] *Istanbul Health and Technology University, İstanbul, Türkiye.* ebru.gorunmek@istun.edu.tr

[b] *Marmara University, İstanbul, Türkiye.* makbulesoyer@marmara.edu.tr

ABSTRACT

The purpose of this study is to examine the effects of psychological flexibility and intolerance of uncertainty on individuals' decision-making styles among university students. The study was designed as a correlational survey model, and data were collected from 381 university students aged 18-29. Participants completed the Intolerance of Uncertainty Scale, the Psychological Flexibility Scale, and the Rational and Intuitive Decision Making Styles Scale. Multiple linear regression analysis was used in the data analysis. The dependent variables of this study are the subdimensions of decision-making styles, namely rational decision making and intuitive decision making. The independent variables are the subdimensions of psychological flexibility, which include acceptance, being present, defusion, self as context, values, and committed action. The other independent variable are the subdimensions of intolerance of uncertainty, specifically future-oriented anxiety and inhibitory anxiety. According to the study's findings, the subdimensions of psychological flexibility —namely, values and committed action, being present, and defusion —along with the subdimension of intolerance of uncertainty, specifically future-oriented anxiety, significantly predicted rational decision-making. Furthermore, it was determined that the subdimensions of psychological flexibility, self as context, as well as values and committed action, are meaningful predictors of intuitive decision making. The research findings were discussed in the context of existing literature.

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Corresponding Author: Ebru Talibe Turgut, e-mail: ebru.gorunmek@istun.edu.tr

Introduction

In every area of life and at almost every moment, everyone must make decisions to meet their needs or solve their problems. The importance and difficulty level of the decisions made vary. Decision making refers to choosing from alternatives to solve a problem or achieve a goal (Beach & Connoly, 2005). Decision-making processes differ from person to person (Connors et al., 2016; Scott & Bruce, 1995). When individuals need to make decisions, they tend to make similar choices repeatedly based on their past experiences and learning. In these decision-making processes, individuals form certain habits by following the behavioral patterns they have learned. This tendency to act based on habit indicates an individual's decision-making style. Decision-making styles vary from person to person (Harren, 1979; Scott & Bruce, 1995). Various suggestions have been made for classifying decision making styles, but it has been determined that these classifications have problems in terms of theoretical basis or validity studies (Mohammed & Schwall, 2009). Considering these shortcomings, Hamilton, Shih, and Mohammed (2016) classified decision making into two basic styles based on dual-process cognitive theory: rational and intuitive decision making. Dual-process cognitive theory explains this situation through different information processing processes. According to dual-process cognitive theory, the diversity in decision-making processes is related to two distinct information processing processes. The first type of information processing is automatic, fast, and preconscious, and does not require working memory; it is referred to as intuitive information processing. The second is rule-based, slow, effortful, conscious, and requires working memory; it is reflective information processing (Philips et al., 2016). In other words, the rational decision making style refers to a decision-making process that requires conscious effort and time, involving the evaluation of options within a framework of criteria (Fitzgerald et al., 2017), while the intuitive decision-making style refers to decision making processes based on seemingly unrelated emotions (Ritter & Dijskterhuis, 2014). There is a perception that these two decisions making styles represent opposite decision-making processes in terms of their outcomes. Some studies support this perception, finding that the rational decision-making style is the key to effective decision making (Crossley & Highhouse, 2005; Wood, 2012). Rational decision-making has been found to have a positive relationship with academic success (Baiocco et al., 2009) and decisiveness (Joseph, 2012), and a negative relationship with indecisiveness (Curşeu & Schruijer, 2012). However, there are also studies that have found an association between intuitive decision-making style and effective decision making (Bierman et al., 2005; Usher et al., 2011). In addition, studies have found both decision-making styles to be functional and effective in making healthy decisions. For example, in their study, Nygren and White found that both rational and intuitive decision-making styles are associated with high self-efficacy and the Big Five personality traits of conscientiousness, agreeableness, and emotional stability. Stevenson and Hicks (2016) found that both rational and intuitive decision-making styles predict happiness.

Factors influencing the decision-making process can be classified as individual and environmental. Individual factors include personality traits (Dewberry et al., 2013), thinking practices, basic self-assessment, and the general ability to initiate and sustain an intention (Thunholm, 2004), value judgments (Fritzsche & Oz, 2007), attitude towards risk (Hablemitoğlu & Yıldırım, 2008), and age (de Acedo Lizárraga et al., 2007; Eppinger et al.,

2013). Environmental factors include the social and cultural structure of the context (Vera et al., 2024) and whether there is a time constraint in the decision making process (Koçoğlu, 2010). Additionally, the level of uncertainty in the environment is another environmental factor that influences decision-making. Uncertainties are inevitably experienced in life (Yığman and Fidan, 2021). According to Birrel et al. (2011), it is easier for individuals to predict possible outcomes in a certain environment, which facilitates their decision making. However, in contexts with high uncertainty, it becomes more difficult for individuals to make decisions. In such situations, individuals may not always be able to manage their reactions to uncertainty in a desirable manner. In the literature, this situation is referred to as intolerance of uncertainty (Dugas & Robichaud, 2007).

Intolerance of uncertainty refers to negative cognitive, emotional, and behavioral responses to situations or events involving uncertainty (Buhr & Dugas, 2009; Freeston et al., 1994). An individual with a high level of intolerance to uncertainty feels more discomfort than an individual with a low level of intolerance to uncertainty regarding the same uncertain situation (Ranney et al., 2019), because individuals with a high level of intolerance to uncertainty perceive uncertain situations as threats (Bredemeier & Berenbaum, 2008). At the same time, individuals with a high level of intolerance to uncertainty have a low threshold for tolerance or endurance (Ladouceur et al., 2000). Evaluating an event as definite or uncertain is related to the individual's perception of the event (Dugas et al., 2005). According to Birrel et al. (2011), intolerance of uncertainty is related to an individual's emotional situation. If an individual cannot cope with the stressful emotions that arise in the face of perceived uncertainty, this situation paves the way for the emergence of many psychopathologies (Gentes & Ruscio, 2011). Studies have found that intolerance of uncertainty is related to an individual's decision-making processes (Alataş, 2023; Yıldız & Erdeleklioğlu, 2021; Xu & Tracey, 2014). According to Dugas and Robichaud (2007), intolerance of uncertainty manifests itself emotionally as anxiety. This anxiety has an inhibitory effect on individuals with high levels of intolerance of uncertainty, and they require more information to make decisions. In the literature, the development of intolerance to uncertainty is associated with variables such as neurological foundations (Tanovic et al., 2018), anxious and rejecting parenting styles (Zlomke & Young, 2009), and neuroticism personality traits (Mahoney & McEvoy, 2012). Another variable associated with intolerance of uncertainty is psychological flexibility (Daşçı et al., 2023).

Psychological flexibility is a key component of an individual's overall well-being. It refers to an individual's capacity to adapt to new environments and situations, change their perspective, when necessary, restructure their mental resources, and balance needs and desires in different areas of life (Kashdan & Rottenberg, 2010). It includes factors such as openness to experience, awareness, and commitment to life in an individual's life circumstances (McCracken, 2024). In the literature, it has emerged as a key concept within Acceptance and Commitment Therapy, one of the third-wave psychotherapy schools (Cherry et al., 2021). As conceptualized within Acceptance and Commitment Therapy, psychological flexibility refers to an individual's ability to act or change their behavior in line with what is valuable to them while being mindful of the present moment (Hayes et al., 2006). In the Acceptance and Commitment Therapy school, psychological flexibility consists of six core dimensions. These dimensions are acceptance, cognitive defusion, being present, self as

context/contextual self, values, and committed action (Ciarrochi et al., 2010). The concept of psychological flexibility, central to Acceptance and Commitment Therapy, is a key indicator of psychological well-being (Harris, 2019; Kashdan & Rottenberg, 2010). Cognitive defusion allows thoughts to come and go without getting caught up in them (Ciarrochi et al., 2010). Acceptance means allowing feelings, thoughts, and sensations to come and go without trying to change them or fighting them, even if they are painful. Flexible contact with the moment means establishing contact with both one's inner world and the outside world with awareness. In contrast, the contextual self refers to the self that one can observe from a distance without being overwhelmed by feelings or thoughts. The values dimension of psychological flexibility refers to the areas that an individual values in life and are their fundamental motivating principles. Finally, value-directed actions refer to an individual acting in accordance with their values (Hayes et al., 2006).

Emerging adulthood is the developmental period between adolescence and adulthood conceptualized by Arnett (1994, 1998, 2000). Arnett (2015) states that emerging adulthood typically spans the ages of 18 to 29. University years are considered part of the emerging adulthood developmental period. During this period, individuals continue to search for identity and experiment with and explore adult roles. Individuals also try to cope with uncertainties in areas such as career and relationships during this process. A qualitative study on individuals' psychological flexibility levels during this period found that university students had low levels of acceptance, cognitive dissonance, being present, and contextual self, but high levels of values and acting in accordance with values (Özdemir & Soysal, 2023). In his study with university students in emerging adulthood, Nekić (2023) found that intolerance of uncertainty led to anxiety for the individual; however, as the level of contact with the moment increased, anxiety and intolerance of uncertainty decreased. According to Erikson (1968), the developmental tasks that must be completed in each developmental period are crises. The successful completion of an individual's developmental task means overcoming the crisis. The individual's choices and actions play a decisive role in shaping their lives during this developmental period. In emerging adulthood, individuals must make decisions on numerous issues, and it is observed that individuals' decision-making styles differ in the same situations (Joseph, 2012). Kwork (2018) emphasizes that the uncertainty of the environment during emerging adulthood plays a critical role in career development. In this regard, Miller and McGuire (2023) highlight that developing the characteristics and skills necessary to cope with intolerance to uncertainty is important for this age group. Therefore, it is seen that many factors influence the decisions individuals make during this developmental period. Investigating the effect of intolerance of uncertainty and psychological flexibility on an individual's decision-making processes is both preventative and developmental for this age group. This study is expected to contribute to literature by examining the role of the sub-dimensions of the variables of intolerance of uncertainty and psychological flexibility on decision making styles.

The aim of this study is to examine the role of intolerance of uncertainty and psychological flexibility in explaining decision making styles. The hypotheses of the study are as follows:

- The model of intolerance of uncertainty and psychological flexibility, including its subdimensions, meaningfully explains rational decision-making.

- The model of intolerance of uncertainty and psychological flexibility, including its subdimensions meaningfully explains intuitive decision making.

Method

Research Model

This study employed correlational survey design. A correlational survey design is a research design that explains the relationship between two or more variables (Büyüköztürk et al., 2018). A model is proposed in the study to explain the relationship between intolerance of uncertainty, psychological flexibility, and decision making styles.

Study Group

The study group was determined using criterion-based appropriate sampling. The criterion for inclusion in the study group was being an undergraduate or graduate student within the emerging adulthood period, defined by Arnett (2015) as the age range of 18-29. In purposive sampling, the researcher creates the sample by including participants who are suitable for the research purpose and easily accessible (Büyüköztürk et al., 2018).

The study group consisted of 310 female students (81.4%) and 71 male students (18.6%). Of the students, 102 (6.8%) are first-year students, 90 (23.6%) are second-year students, 99 (26%) are third-year students, 75 (19.7%) are fourth-year students, and 15 (3.9%) are graduate students.

Data Collection Tools

In this study, the "Personal Information Form," the "Intolerance of Uncertainty Scale" adapted by Sarıçam et al. (2014), the "Psychological Flexibility Scale" developed by Uygur and Karaca (2020), and the "Rational and Intuitive Decision making Styles Scale" adapted by Ime, Soyer, and Keskinoğlu (2020) were used with the permission of the relevant researchers. Information about the measurement tools is provided below:

Personal Information Form

The "Personal Information Form" used in this study collected information from participants regarding their gender, age, and education level.

Intolerance of Uncertainty Scale

The original Intolerance of Uncertainty Scale (BTÖ-12) was developed by Carleton et al. (2007). The Turkish adaptation, validity, and reliability studies were conducted by Sarıçam et al. (2014). To assess the construct validity of the scale, exploratory factor analysis was first performed, revealing that the scale is two-dimensional, consistent with the original, and that the items explain 78.57% of the total variance. The subscales of the scale are future-oriented anxiety (7 items) and inhibitory anxiety (5 items), totaling 12 items. The items are on a five-point Likert scale ranging from "Not at all appropriate (1)" to "Completely appropriate (5)". There are no reverse items in the scale, and total scores can be obtained, ranging from 12 to 60. Confirmatory factor analysis was performed to check construct validity, and the scale's fit indices were found to be within acceptable ranges (x2= 147.20, df= 48, RMSEA=.073, CFI=.95,

IFI=.95, GFI=.94, SRMR=.046). The criterion validity of

the scale was examined in relation to coping flexibility and educational stress, revealing a negative correlation with coping flexibility (r = -0.43) and a positive correlation with educational stress (r = 0.41). High scores on the scale indicate a high level of intolerance to uncertainty. The Cronbach's alpha internal consistency reliability coefficient for the scale was found to be 0.88 for the entire scale, 0.84 for the forward-looking anxiety subscale, and 0.77 for the inhibitory anxiety subscale. In this study, Cronbach's alpha internal consistency reliability coefficient for the scale was found to be .97 for the entire scale, .83 for the forward-looking anxiety subscale, and .90 for the inhibitory anxiety subscale.

Psychological Flexibility Scale

The Psychological Flexibility Scale was developed by Uygur and Karaca (2020) based on the psychological flexibility model included in Acceptance and Commitment Therapy. According to the exploratory factor analysis applied, it was determined that the scale has five dimensions and that the items explain 60.34% of the total variance. The subscales of the scale are: acceptance (4 items), being present (3 items), self as context (3 items), defusion (3 items), and values and committed action (3 items). The scale consists of 16 items on a 5-point Likert scale. Two items are reverse- scored, and high scores on the total score indicate a high level of psychological flexibility. Scores can range from 16 to 80 on the scale. Confirmatory factor analysis was performed to verify the construct validity of the scale. It was determined that the scale's fit indices were within an appropriate range (x2/sd= 2.62, RMSEA= .05, AGFI= .92, GFI= .95, CFI= .93, NFI= .90, NNFI= .90, IFI= .93, SRMR= .05). In this study, Cronbach's alpha internal consistency reliability coefficient was found to be .83 for the entire scale, .70 for the acceptance subscale, .66 for being present, .67 for self as a context, .73 for defusion, and .70 for the values and committed action subscale. In this study, Cronbach's alpha internal consistency reliability coefficient was found to be .89 for the entire scale, .77 for the acceptance subscale, .53 for being present, .77 for self as context, .77 for defusion, and .82 for the values and committed action subscale.

Rational and Intuitive Decision Making Styles Scale

Hamilton et al. (2016) developed the original Rational and Intuitive Decision making Styles Scale. Ime et al. (2020) conducted studies on the Turkish adaptation, validity, and reliability. It consists of two subscales, rational decision making (5 items) and intuitive decision making (5 items), and 10 items in total. The items are on a five-point Likert scale ranging from "Never (1)" to "Always (5)". Scoring is done separately for each subscale, and no total score is obtained from the scale. A minimum of 5 and a maximum of 25 points are obtained for each sub-dimension. Confirmatory factor analysis was performed to assess construct validity, and it was determined that the fit indices obtained were within acceptable ranges ($\chi 2/df = 2.57$, CFI = .98, TLI = .97, RMSEA = .06, SRMR = .06). Criterion validity was examined by examining the relationship with the decision-making styles scale. A positive correlation of .78 was found between the scores for rational decision making and logical decision making, which are sub-dimensions of the scales, and a positive correlation of .59 was found between the scores for intuitive decision making on both scales. For reliability, Cronbach's alpha coefficient was calculated as .80 for the entire scale, .90 for the rational decision making sub-dimension, and

.85 for intuitive decision making. In this study, Cronbach's alpha coefficient was found to be 0.90 for the entire scale, 0.93 for the rational decision-making sub-dimension, and 0.90 for the intuitive decision-making sub-dimension.

Data Collection and Analysis

For the research, ethical approval was first obtained from the Research and Publication Ethics Committee of the Institute of Educational Sciences at Marmara University, dated December 10, 2024, with approval number 938560. The research data was collected via the Google Forms (online) website. Participants were informed that the data would be used solely for scientific purposes and would be kept confidential. Participation in the research was voluntary, and participants' consent was obtained at the beginning of the research. The IBM SPSS Statistics 26 program was used for data analysis in research. First, the suitability of the data for regression analysis was evaluated. No missing data were observed in the data, and the Mahalanobis distance test was applied to control for outliers. A total of 6 data points that were not suitable (<0.01) were removed. The dependent and independent variables were found to be normally distributed by looking at their skewness and kurtosis values (+1/-1) and histogram graphs. The relationships between the variables were examined using scatter plots, and it was seen that they had a linear relationship. Another assumption that must be checked before regression analysis is multicollinearity. Multicollinearity refers to a high ccorrelationbetween independent variables. The analyses showed that the correlation coefficient between the independent variables was less than .80, and the VIF values were less than 10, while the tolerance values were greater than .20, indicating that there was no multicollinearity problem. These values yielded the same results for different dependent variables. The Durbin-Watson test was used to test the independence assumptions of the error terms. The results indicate that the independence assumption of the errors is satisfied (DW1: 1.94; DW2: 2.08). After these assumptions were verified, a multiple linear regression analysis was conducted to address the research questions. In this study, two separate regression analyses were conducted for the two dependent variables, in line with the research questions.

Findings

This section first presents the descriptive analysis findings of the study variables and the correlation coefficient findings between the variables. Second, the results of the multiple linear regression analysis for the two dependent variables are presented.

Table 1

Mean, Standard Deviation Values, and Pearson Moment Correlation Coefficients of the Sub-Dimensions of Intolerance to Uncertainty and Psychological Flexibility Variables and the Rational Decision Making and Intuitive Decision Making Variables

	X̄	SS	1	2	3	4	5	6	7	8	9
1. AKVT	18.59	4.73	1								
2. SKVT	13.58	3.59	.384**	1							
3. PE$_{acceptance}$	10.15	2.35	.371**	.240**	1						
4. PE$_{present}$	10.84	2.82	.277**	.058	.253**	1					
5. PE $_{self}$	9.64	2.66	.439**	.319**	.623**	,179**	1				
6. PE defusion	11.57	2.74	.384**	.158**	.639**	,205**	,578**	1			
7. PE $_{values}$	21.98	5.56	.592**	.307**	.646**	,241**	,688**	,556**	1		
8. BT $_{forward}$	14.89	5.05	.279**	.155**	.104*	-0.083	,300**	-,025	,288**	1	
9. BT $_{inhibitor}$	18.59	4.73	,121*	.108*	-,035	-,194**	,109*	-,172**	.122*	,710**	1

Notes. AKVT: Rational Decision Making Total Score; SKVT: Intuitive Decision Making Total Score; PEacceptance: Psychological Flexi bility Scale Acceptance Subscale; PEpresent: Psychological Flexibility Scale Being Present Subscale, PEself: Psychological Flexibility Scale Self as a Context Subscale, PEdefusion: Psychological Flexibility Scale Defusion Subscale, PEvalues: Psychological Flexibility Scale Values and Committed Action Subscale, BTforward: Intolerance of Uncertainty Scale Forward-Looking Anxiety Subscale, BTinhibitory: Intolerance of Uncertainty Scale Inhibitory Anxiety Subscale, X̄: Mean; SS: Standard Deviation. n = 381. *p < .05, **p < .01.

When Table 1 is examined, the mean and standard deviation values of the total scores of the research variables are as follows: For rational decision making, X̄ = 18.59, SS = 4.73; for intuitive decision making, X̄ = 13.58, SS = 3.59; for the sub-dimensions of the psychological flexibility variable, acceptance X̄ = 10.15, SS = 2.35; being present X̄ = 10.84, SS = 2.82; contextual self X̄ = 9.64, SS = 2.66; defusion X̄ = 11.57, SS = 2.74; values and committed action X̄ = 21.98, SS = 5.56; looking at the sub-dimensions of the intolerance of uncertainty variable, forward-looking anxiety X̄ = 14.89, SS = 5.05; inhibitory anxiety X̄ = 18.59, SS = 4.73.

Secondly, the table also includes Pearson's Moment Correlation coefficients, which were calculated to see the correlations between variables before performing the regression analysis: Table 1 shows that there is a moderate relationship (r=.384, p<.01) between rational decision-making and intuitive decision making. A moderately significant relationship (r=0.371, p<0.01) was found between the acceptance dimension of psychological flexibility and rational decision making, and a low-level relationship (r=0.240, p<0.01) was found between intuitive decision making and rational decision making. A low level of significant relationship was found between cognitive flexibility and rational decision making (r=0.277, p<0.01), and no significant relationship was found with intuitive decision making (r=0.058, p<0.01). A moderate correlation was found between the contextual self and rational decision- making (r=0.439, p<0.01) and intuitive decision making (r=0.319, p<0.01). A moderate relationship was found between defusion and rational decision making (r=0.384, p<0.01) and a low relationship with intuitive decision making (r=0.158, p<0.01). Finally, a high level of significant correlation

(r=0.592, p<0.01) was found between values and rational decision making, and a moderate level of correlation (r=0.307, p<0.01) was found between intuitive decision making and rational decision making.

A low level of correlation (r=0.279, p<0.01) was found between intolerance of uncertainty and forward-looking anxiety in relation to rational decision making, and a low level of correlation (r=0.279, p<0.01) was found in relation to intuitive decision making. Finally, a low-level relationship was found between inhibitory anxiety and rational decision making (r = 0.121, p

< 0.05) and intuitive decision making (r = 0.108, p < 0.05).

When examining the relationships between each of the seven independent variables—the two subscales of the intolerance of uncertainty scale and the five subscales of the psychological flexibility scale—there were no significant correlations greater than 0.80, which could cause multicollinearity problems. In line with the research hypotheses, two multiple regression analyses were conducted to separately evaluate the relationships between the variables of intolerance of uncertainty and psychological flexibility and the variables of rational and intuitive decision making. The regression analysis results for both are presented in Tables 2 and 3 below.

Table 2

Multiple Regression Analysis Results for the Predictive Effects of Psychological Flexibility and Intolerance of Uncertainty Variables on Rational Decision Making

		B	Sh	β	*t*	*p*	Binary r	Partial R
	Constant	1.60	1.34		1.20	.23		
	$PE_{acceptance}$	-0.12	.08	-,09	-1.54	.12	.37	-,06
	$PE_{present}$	.34	.09	.17	3.92	.00	.28	.16
PE	PE_{self}	.00	,10	.00	.041	.97	.44	.00
	$PE_{defusion}$	.25	.10	.14	2.46	.01	.38	.1
	PE_{values}	.83	.11	.48	7.76	.00	.59	31
BT	$BT_{forward}$	.14	.05	.17	2.79	.01	.28	.11
	$BT_{inhibitor}$	-0.01	.06	-,01	-,09	.93	.12	-,00

Notes. R = 0.40, R2= 0.389, F (7, 373) = 35.512, p < .001;
PE: Psychological Flexibility; BT: Intolerance of Uncertainty

Table 2 shows that in the established model, the subdimensions of psychological flexibility and intolerance of uncertainty explain 39% of the total variance in rational decision making (R = 0.40, R2= 0.389, F(7, 373) = 35.512, p < .001).

The subdimensions of psychological flexibility, in order of importance, are values (β = 0.48, p < .001), being present (β = 0.17, p < .001), and defusion (β = 0.14, p = .01), which collectively significantly explain the dependent variable of rational decision-making. However, the variables of acceptance (β = -0.09, p = .12) and contextual self (β = 0.00, p = .97) do not contribute

significantly to the model.

When examining the intolerance of uncertainty variables, forward-directed anxiety (β = 0.17, p = .01) significantly predicts the dependent variable, while inhibitory anxiety (β = -0.01, p = .93) does not make a significant contribution.

Table 3

Multiple Regression Analysis Results for the Predictive Effects of Psychological Flexibility and Intolerance of Uncertainty Variables on Intuitive Decision Making

		B	Sh	β	*t*	*p*	Binary r	Partial R
PE	Constant	8,87	1,31		6,64	,00		
	$PE_{acceptance}$	,08	,10	,06	,79	,43	,24	,04
	PE_{self}	,36	,12	,22	2,89	,00	,32	,15
	$PE_{defusion}$	-,15	,12	-,08	-1,21	,23	,16	-,06
	PE_{values}	,28	,13	,16	2,18	,03	,31	,11
BT	$BT_{forward}$	-,00	,06	-,00	-,04	,97	,16	-,00
	$BT_{inhibitor}$	,05	,07	,05	,77	,44	,11	,04

Notes. R = 0,35, R^2 = 0,11, F (6, 374) = 8,846, p <.001;
PE: Psychological Flexibility, BT: Intolerance of Uncertainty

When examining Table 3, psychological flexibility and intolerance of uncertainty sub-dimensions explain 11% of the total variance in intuitive decision making in the established model (R = 0.35, R2= 0.11, F(6, 374) = 8.846, p < .001).

When looking at the subdimensions of psychological flexibility in order of importance, self as context (β = 0.22, p < .01) and values and committed action (β = 0.16, p = .03) significantly explain the dependent variable. However, acceptance (β = 0.06, p = .43) and defusion (β = -0.08, p =.23) did not contribute significantly. Being present was not included in the model because there was no significant relationship between it and intuitive decision-making.

When examining the relationships with intolerance of uncertainty variables, forward-looking anxiety (β = -0.00, p = .97) and inhibitory anxiety (β = 0.05, p = .44) do not significantly predict the dependent variable. The findings presented in the discussion section were discussed in light of the existing literature.

Discussion

This study examined the roles of psychological flexibility and intolerance of uncertainty in explaining decision making styles. To this end, the predictive power of the independent variables on rational and intuitive decision making, two sub-dimensions of decision making that indicate different processes, was examined separately. The results obtained in this section are discussed considering the literature.

In the analysis of the prediction of psychological flexibility and intolerance of uncertainty on

rational decision making, the dimensions of psychological flexibility values and committed action, being present, and defusion, and intolerance of uncertainty's forward-looking anxiety subdimension were found to be significant predictors of rational decision making. In contrast, the acceptance and self-as-context subdimensions of psychological flexibility, as well as the inhibitory anxiety subdimension of intolerance of uncertainty, were not found to be significant predictors of rational decision-making. Adopted values were found to be the variable with the most significant role in explaining rational decision making. This result is consistent with the literature. Griffiths et al. (2021) found that personal values are effective in both rational and intuitive decision making processes. Another study with adolescents found that different value domains are related to decision making processes (Páez Gallego et al., 2020). This result shows that acting in accordance with one's personal values is effective in ensuring that individuals are rational and consistent in their decision-making processes. Values represent the areas that are important to an individual in life (Hayes et al., 2006). Being aware of one's personal values and acting in accordance with them can be effective in ensuring rational behavior, as it enables individuals to know which direction to take in their decision-making processes. Maintaining flexible contact with the present moment and the subdimensions of dissociation have also been found to be predictive of rational decision-making. These results can be explained by the fact that individuals with high levels of psychological flexibility are aware of the present moment and the thoughts that arise, analyze their situation well, identify alternatives, and make appropriate and rational choices for themselves.

Another finding from the research results is that acceptance and self as context do not contribute significantly to explaining rational decision making. Özdemir and Soysal (2023) found that university students have low levels of acceptance. Acceptance, as addressed within the psychological flexibility model in the Acceptance and Commitment Therapy approach, refers to the individual's awareness of their emotions and their willingness to stay with those emotions without trying to eliminate them. This perspective, seen in third-wave cognitive behavioral therapy approaches, is a different perspective on dealing with emotions. This is because traditional Cognitive Behavioral Therapy approaches seek to control, reduce, or eliminate emotions and other internal experiences (Levin & Hayes, 2011; Yavuz, 2015). Therefore, in this study, university students may not have been able to evaluate themselves from this perspective, as reflected in their acceptance. Similarly, contextual self requires individuals to notice what they observe about themselves from an external perspective and to recognize that their self is a structure composed of parts (Harris, 2019). Therefore, students' assessments of this dimension may have varied due to differences in their levels of awareness. This study found that intolerance of uncertainty positively and significantly predicts the forward-looking anxiety sub-dimension of rational decision making. Yıldız and Erdeleklioğlu (2021) found in their studies that intolerance of uncertainty is a predictor of careful decision-making. Intolerance of uncertainty brings about anxiety and related symptoms (Chen et al., 2018; Yığman & Fidan, 2021). With the anxiety that arises emotionally, the individual may show a tendency to think more systematically, according to their established criteria, and rationally to escape situations involving uncertainty. However, sometimes individuals may also exhibit control behavior or avoidance behavior to eliminate uncertainties (Robichaud, 2013). Avoidant behavior is an obstacle to achieving the desired outcome.

In the analysis conducted on the prediction of intuitive decision making by independent

variables, it was found that psychological flexibility, self as a context, and values and committed action are meaningful predictors of intuitive decision making, whereas the acceptance and defusion sub-dimensions of psychological flexibility and the forward-looking and inhibitory anxiety sub-dimensions of intolerance of uncertainty do not affect intuitive decision making. No study in the literature directly examines the relationship between self as context, values, and intuitive decision making. The common understanding of an intuitive decision-making style is that it is a style used in decision-making processes based on seemingly unrelated emotions (Ritter & Dijskterhuis, 2014). It is seen that common definitions of intuitive decision-making reduce intuitive decision-making style to emotions. Xinghua and Zhixin (2018) state that the intuitive decision-making style is related to the individual's experience and knowledge base, in addition to intuition, when faced with a situation. Research results also indicate that contextual self and values point to the individual's self-awareness and recognition of what is important to them (Harris, 2019). As noted above, Griffiths et al. (2021) found that personal values influence both rational and intuitive decision making processes. Findings from the study show that individuals who are knowledgeable about themselves may tend to make intuitive decisions when necessary, taking their values and self-awareness into account. Therefore, the intuitive decision-making process not only refers to acting solely on emotions that arise in situations, but also to the experiences and awareness that give rise to these emotions.

This study found that neither the subdimensions of future-oriented anxiety nor inhibitory anxiety of intolerance to uncertainty played a significant role in explaining intuitive decision-making. A review of the literature reveals various findings on this subject. Alataş (2023), in a study conducted with professional tourist guides, concluded that intolerance of uncertainty significantly predicts intuitive decision-making and interpreted this result as an increase in the tendency toward intuitive decision-making as uncertainty increases. On the other hand, Butler et al. (2014) examined the avoidance of risk and uncertainty in individuals with rational and intuitive thinking styles in their study on decision making processes. According to the research results, they found that intuitive thinkers avoided risk and uncertainty less and showed more tolerance. They explained this situation with the interpretation that intuitive thinking is effective in coping with complex situations involving many uncertainties.

On the other hand, this research has certain limitations. First, the research data was collected through online platforms. It was collected by sharing social media accounts and by entering classrooms at universities accessible to the researcher. Therefore, the research is limited to students who use social media and are present in classrooms during data collection. In future research, this model can be repeated with larger sample groups to increase its generalizability. Another limitation is that most of the sample consisted of female students. The study could be repeated with a more balanced number of male and female participants. The reliability coefficients of the sub-dimensions of psychological flexibility, one of the research variables, were found to be low. This creates limitations in interpreting the findings related to the sub-dimensions. Despite these limitations, the research has yielded original results in identifying the explanatory factors of decision-making styles among university students. Studies indicate that cognitive flexibility is a preferred variable among those that contribute to understanding and explaining decision-making styles (Bilgiç & Bilgin, 2016; Kara, 2020). This study examined the relationship between psychological flexibility, which is associated with cognitive flexibility

(Grant & Cassidy, 2022), psychological well-being (Hayes et al., 2006), and psychological flexibility, which includes dimensions different from cognitive flexibility. It is found that some sub-dimensions of psychological flexibility also play a significant predictive role in rational and intuitive decision making. Data was collected from university students in the emerging adulthood period (Arnett, 2000). Individuals in this period are trying to cope with many difficulties in their lives. Therefore, determining the relationship between psychological flexibility factors, which indicate intolerance to uncertainty and well-being in response to difficulties, and decision-making processes sheds light on the needs of this developmental period and contributes to literature. Future studies may aim to identify the mechanisms underlying these relationships and the conditions under which they occur. In particular, the sub-dimension of adopted values, a common predictor in both rational and intuitive decision-making processes, has been identified as an area that needs to be focused on during this developmental period. Future studies may focus on this variable. At the same time, considering the results obtained, it is recommended that psychological flexibility be considered in psychological interventions aimed at improving individuals' decision-making processes.

Declarations

Ethics statement: This research was conducted with the permission of Marmara University Institute of Educational Sciences Research and Publication Ethics Committee with the decision dated 25/12/2024 and numbered 938560. Informed consent was obtained from all participants.

Author Contributions (CRediT): E. T. Turgut: Conceptualization, Methodology, Data Curation, Formal Analysis, Writing, Review & Editing M. Kalı Soyer: Conceptualization, Data Curation, Writing, Review & Editing, Supervision

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