

The Relationship Between the Intolerance of Uncertainty and Time Management in Individuals with Generalized Anxiety Disorders

Yaygın Anksiyete Bozukluğu Olan Bireylerde Belirsizliğe Tahammülsüzlük ve Zaman Yönetimi Arasındaki İlişki

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ABSTRACT

Background: There are limited data on the relationship between intolerance of uncertainty (IU) and time management (TM) in patients with generalized anxiety disorder (GAD). In this study, we aimed to investigate the relationship between IU and TM in GAD patients and the effect of sociodemographic variables on this relationship.

Materials and Methods: One hundred thirty one GAD patients (68 women, 63 men) and 120 healthy individuals (62 women, 58 men) as a control group (CG) were included in the study. The data form regarding sociodemographic characteristics was administered by the clinician. After the interview, all participants filled out the IU scale and TM inventory.

Results: The average age of those with GAD was 32.76 ± 11.82 , and the average age of those with CG was 33.41 ± 11.89 . The proportion of women with GAD was 51.9%. IU and TM levels were higher in GAD patients than in CG ($p < 0.05$), and a significant difference was observed in IU and TM levels in terms of age, gender, marital status, occupational status ($p < 0.05$). There was no difference between the groups in terms of educational status and family history of psychiatric disease ($p > 0.05$). A positive relationship was found between IU and TM levels in patients with GAD ($r = 0.248$, $p = 0.004$). There was a negative relationship between the average age and IU ($r = -0.173$, $p < 0.05$) and TM ($r = -0.313$, $p < 0.05$) levels.

Conclusion: IU, which plays an important role in the development, maintenance and symptomatology of GAD, is effective in the development of TM skills. Age, gender and various sociodemographic characteristics play a role in this interaction. Evidence from this study will be valuable in further research into how the relationship between IU and TM plays a role in the development of other anxiety disorders and how sociodemographic variables may influence these processes.

Keywords: Generalized anxiety disorder, intolerance of uncertainty, time management.

ÖZ

Amaç: Yaygın anksiyete bozukluğu (YAB) hastalarında belirsizliğe tahammülsüzlük (BT) ve zaman yönetimi (ZY) ilişkisine ilişkin veriler sınırlıdır. Bu çalışmada YAB hastalarında BT ile ZY arasındaki ilişkiyi ve bu ilişkide sosyodemografik değişkenlerin etkisini araştırmayı amaçladık.

Gereç ve Yöntemler: Çalışmaya 131 YAB hastası (68 kadın, 63 erkek) ve kontrol grubu (KG) olarak 120 sağlıklı birey (62 kadın, 58 erkek) dahil edildi. Sosyodemografik özelliklere ilişkin veri formu klinisyen tarafından uygulandı. Görüşmenin ardından tüm katılımcılar BT ölçeği ve ZY envanterini doldurdu.

Bulgular: YAB olanların yaş ortalaması $32,76 \pm 11,82$, KG olanların yaş ortalaması $33,41 \pm 11,89$ idi. YAB'lı kadınların oranı %51,9 idi. YAB hastalarında BT ve ZY düzeyleri KG'ye göre daha yüksekti ($p < 0,05$), yaş, cinsiyet, medeni durum, mesleki durum açısından BT ve ZY düzeylerinde anlamlı farklılık gözlemlendi ($p < 0,05$). Gruplar arasında eğitim durumu ve ailede psikiyatrik hastalık öyküsü açısından fark yoktu ($p > 0,05$). YAB hastalarında BT ve ZY düzeyleri arasında pozitif ilişki bulundu ($r = 0,248$, $p = 0,004$). Yaş ortalaması ile BT ($r = -0,173$, $p < 0,05$) ve ZY ($r = -0,313$, $p < 0,05$) düzeyleri arasında negatif ilişki vardı.

Sonuç: YAB'nin gelişiminde, sürdürülmesinde ve semptomatolojisinde önemli rol oynayan BT, TM becerilerinin geliştirilmesinde etkilidir. Bu etkileşimde yaş, cinsiyet ve çeşitli sosyodemografik özellikler rol oynamaktadır. Bu çalışmadan elde edilen kanıtlar, BT ve ZY arasındaki ilişkinin diğer anksiyete bozukluklarının gelişiminde nasıl bir rol oynadığı ve sosyodemografik değişkenlerin bu süreçleri nasıl etkileyebileceği konusunda yapılacak ileri araştırmalarda değerli olacaktır.

Anahtar Kelimeler: Yaygın anksiyete bozukluğu, belirsizliğe tahammülsüzlük, zaman yönetimi



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Introduction

Generalized anxiety disorder (GAD) is characterized by excessive and persistent worry and anxiety about daily internal and external events and impairments in autonomic arousal, restlessness, fatigue, concentration difficulties, irritability, sleep problems, and psychosocial functions (1). The 12-month prevalence of GAD worldwide is estimated to range from 0.2% to 4.3% (1). A recent study in Türkiye reported that the lifetime prevalence of GAD was 14.7% (2). GAD is accompanied by many mental disorders. Approximately 50-80% of GAD patients have major depressive disorder and 25% have panic disorder (3).

Intolerance of uncertainty (IU) is a common phenomenon used to explain anxiety and is expressed as the tendency to think that a negative event will occur as threatening and unacceptable, regardless of its potential occurrence (4). Carleton (5) found that a range of anxiety-related disorders were associated with significantly higher levels of IU than those in community samples. A recent meta-analysis revealed a strong and significant association between IU and the clinical symptoms of GAD (6).

Since rapid changes in modern life lead individuals to act according to various demands for their time, time management (TM) has increasingly become the focus of attention recently. Attempts to manage time help individuals achieve the results of their activities more effectively and efficiently (7). Those who can use their time effectively and efficiently are those who can distribute their time among various activities such as work, private life, and personal interests (8). In contrast, inadequate time planning (TP) causes insufficient time to be allocated for personal and social activities, reducing individual satisfaction and increasing stress levels (9). This situation also affects the development of positive personality traits such as decision-making, leadership, and critical thinking (9).

The main reason for the problems faced by people who cannot manage their time well, experience intense stress, and think that they do not have enough time to do many things during the day is that they do not know how to use and manage their time (10). In a study conducted on university students, it was reported that students with low TM skills had high trait anxiety levels, female students were more successful than male students in TM and TP, and the anxiety levels of male students were higher than female students (10). In a recent study, it was found that there is a negative relationship between students' TM skills and their depression-anxiety and stress levels, that the high level of anxiety, especially in senior year students, may be related to the end of the university period and starting to live, and that women's ability to use time effectively has a social basis (9).

students with high levels of depression, anxiety, or stress have low TM skills (9).

It is predicted that individuals who cannot tolerate uncertainty may experience an increase in their anxiety levels and poor TM because they are too busy with processes whose outcome is uncertain. Poorly organized TM can also increase anxiety levels. In light of this information, we hypothesized that there may be a relationship between anxiety and depression levels, IU, and TM, and that sociodemographic data may be effective in determining this relationship. We did not find any studies on the relationship between IU and TM in the clinical setting. In this study, we aimed to fill this gap in the literature, investigate the relationship between IU and TM in patients with GAD, and examine the effect of sociodemographic data on these components.

Materials and Methods

In this study, 284 adults aged 18 and over who applied to the Mental Health and Diseases Polyclinic of University of Health Sciences Türkiye, İstanbul Sultan 2. Abdülhamid Han Training and Research Hospital of the University of Health Sciences Türkiye participated in the study.

Participants who were volunteers, who were diagnosed with GAD according to The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic criteria (patient group, PG) and who were not (control group, CG), and who had no problem reading and understanding the semi-structured sociodemographic data form, the Beck anxiety inventory (BAI), the Beck depression inventory (BDI), the IU scale (IUS), and the TM inventory (TMI). Individuals were included in the study.

Those who are younger than 18 years of age, who did not agree to participate in the study, who have comorbid psychiatric diseases (depression, psychotic disorder, personality disorder etc.) other than GAD according to DSM-5 diagnostic criteria, who have a chronic disease or systemic disease (neurological, cardiac, orthopedic, etc.) and semi-structured sociodemographic data, and those with psychiatric disorders who could not read and fill out the data form, IUS, and TMI were not included in the study. People who were similar to the PG in terms of age, gender, education level, etc., and who had no previous psychiatric disease, psychotropic drug use, or medical illness constituted the CG.

The sample size of this study was calculated using the G*Power statistical program (ver.3.1.9.7). Accordingly, it was determined as "90 patients in total, with a minimum of 45 patients in each group" (for Study and CGs) by taking power (power of the test) 0.80, effect size 0.6 (t-test effect size



value range), and Type-1 error (α) 0.05. However, to secure the number of samples and to keep the power value high, the number of samples was increased and 200 samples (100 samples in each group) were used. The power (power of the test) recalculated according to this sample number increased to 98%.

Thirteen people in the PG, nine people in the CG, who completed the questionnaires incompletely, and six people diagnosed with depressive disorder, three people diagnosed with psychotic disorder, and two people diagnosed with personality disorder were excluded from the analysis. Thus, 131 people diagnosed with GAD (63 men, 68 women) and 120 people in the CG (58 men, 62 women) participated in the study.

Data Collection Tools

Sociodemographic Data Form: This form was developed by the researcher to determine the sociodemographic characteristics of the participants (age, gender, education level, marital status, professional status, place of residence, history of psychiatric disease, family history of psychiatric disease, smoking and alcohol use) in accordance with the purpose of the research.

Beck Anxiety Disorder (BAI): BAI is a 21-item Likert-type scale developed by Beck et al. (11) and can be scored between 0 and 3. The higher total scores obtained from the scale indicate the severity of anxiety experienced by the person. The adaptation of the scale to Turkish was made by Ulusoy et al. (12). The Cronbach's alpha internal consistency coefficient of the scale was found to be 0.93 in a psychiatric patient sample.

Beck Depression Inventory (BDI): The BDI is a 21-item Likert-type scale developed by Beck et al. (13) and can be scored from 0 to 3. A higher total score obtained from the scale indicates the severity of depression experienced by the person. The scale was adapted into Turkish by Hisli (14). Cronbach's alpha internal consistency coefficient of the Turkish form of the scale was found to be 0.74.

Intolerance of Uncertainty Scale (IUS): IUS is a four-dimensional scale consisting of 27 items developed by Freeston et al. (15) and adapted into Turkish by Sarı and Dağ (16). These dimensions are "Uncertainty is distressing and upsetting" (Factor 1, IU-F1), "Uncertain events are negative and should be avoided" (Factor 2, IU-F2), "Being uncertain is unfair" (Factor 3, IU-F3) and "Uncertainty leads to the inability to act" (Factor 4, IU-F4). High scores on the scale and subscales indicate high IU. The Cronbach alpha internal consistency coefficient of the scale is 0.95, and the internal consistency coefficients of the subdimensions are between 0.70 and 0.89 (16). In our research, the Cronbach

alpha internal consistency coefficient of the scale value was between 0.79 and 0.95.

Time Management Inventory (TMI): TMI is a three-dimensional scale with 27 items developed by Britton and Tesser (17) and adapted into Turkish by Alay and Koçak (18). These dimensions are TP, time attitudes (TA), and time wasters (TW). The TP sub-dimension measures the planning that the respondents do during the day and week, and high scores indicate that people plan the current week and day correctly. TA questions are asked about how people use their time, and high scores identify people as people who use their time well. In TW questions, questions about long-term planning and future planning are asked, and high scores indicate that people are successful in determining their future goals and objectives. In Alay and Koçak's (18) adaptation study of the scale into Turkish, the internal consistency coefficient of the scale was found to be 0.88 for the TP dimension, 0.66 for the TA dimension, 0.47 for the TW dimension, and 0.80 for the overall scale (18). In our research, the Cronbach alpha internal consistency coefficient of the scale value was between 0.60 and 0.91.

Before starting the research, ethics committee approval (HNEAH-KAEK 2023/71/4368) was obtained from the University of Health Sciences Türkiye, Haydarpaşa Numune Training and Research Hospital Ethics Committee. The study was conducted in accordance with the Declaration of Helsinki. An expert psychiatrist provided information to the volunteers about the study, and written informed consent was obtained from the participants.

Statistical Analysis

Analyses were performed using SPSS (Version 22.0; SPSS Inc., Chicago, Illinois, USA). Number, percentage, mean value, and standard deviation were used to describe the data. The Kolmogorov-Smirnov test was used to examine whether the data conformed to a normal distribution. In pairwise and multiple comparisons, independent sample t-test and One-Way analysis of variance were used for data with normal distribution, Mann-Whitney U test and Kruskal-Wallis test for data that did not comply with normal distribution, and chi-square test for categorical variables. In this study, the relationships among anxiety, depression, IU, and TM were analyzed using the Pearson correlation coefficient. In statistical interpretations, p-values <0.05 were considered significant within the 95% confidence interval.

Results

The average age of the participants was 32.76 ± 11.82 in those with GAD and 33.41 ± 11.89 in the CG. The rate of

Table 1. Sociodemographic data of participants

	Group						Statistical analyse		
	GAD		Control		Total		χ^2	df	p*
	Number (n=131)	Percent (%)	Number (n=120)	Percent (%)	Number (n=251)	Percent (%)			
Age									
18-24 age	43	32.8	35	29.2	78	31.1	4.719	3	0.194
25-34 age	41	31.3	38	31.7	79	31.5			
35-44 age	18	13.7	28	23.3	46	18.3			
45 age and upper	29	22.1	19	15.8	48	19.1			
Sex									
Male	63	48.1	58	48.3	121	48.2	0.001	1	0.969
Female	68	51.9	62	51.7	130	51.8			
Educational status									
Illiterate	1	0.8	2	1.7	3	1.2	0.912	3	0.823
Primary education	25	19.1	21	17.5	46	18.3			
High school	49	37.4	41	34.2	90	35.9			
University	56	42.7	56	46.7	112	44.6			
Marital status									
Single	83	63.4	77	64.2	160	63.7	0.180	1	0.894
Married	48	36.6	43	35.8	91	36.3			
Professional status									
Employee	55	42.0	50	41.7	105	41.8	3.469	4	0.483
Officer	14	10.7	22	18.3	36	14.3			
Retired	8	6.1	7	5.8	15	6.1			
Student	30	22.9	24	20.0	54	21.5			
Housewife	24	18.3	17	14.2	41	16.3			
Place of residence									
Village	3	2.3	7	5.8	10	4.0	2.201	2	0.333
Town	18	13.7	14	11.7	32	12.7			
Town center	110	84.0	99	82.5	209	83.3			
Cigarette									
Yes	61	46.6	50	41.7	111	44.2	0.609	1	0.435
No	70	53.4	70	58.3	140	55.8			
Alcohol									
Yes	50	38.2	32	26.7	82	32.7	3.766	1	0.052
No	81	61.8	88	73.3	169	67.3			
Psychiatric treatment history									
Yes	84	64.1	41	34.2	125	49.8	22.480	1	<0.001
No	47	35.9	79	65.8	126	50.2			
Family history of psychiatric illness									
Yes	59	45.0	32	26.7	91	36.3	9.146	1	0.002
No	72	55.0	88	73.3	160	63.7			

*p<0.05, χ^2 : Chi-square value, df: Degree of freedom, GAD: Generalized anxiety disorder

women with GAD was 51.9%, and 42.7% were university graduates, 63.4% were single, 42.0% were workers, 84% lived in the city center, 53.4% were smokers, 61.8% used alcohol, 64.1% had a history of a psychiatric disorder, and 45.0% had a family history of psychiatric illness (Table 1).

The participants' BAI, BDI, IUS, and TMI total and subscale mean scores are given in Table 2. BAI, BDI, IU, and TM mean scores of PG were significantly higher than those of CG ($p < 0.05$, Table 2).

In the PG, while anxiety levels were significantly higher in women, those with a history of psychiatric treatment, and smokers ($p < 0.05$), depression levels were higher in the 18-24 age group and smokers ($p < 0.05$, Table 3). The mean scores of people with GAD regarding their TA and "uncertainty is distressing and upsetting (IU-F1)" levels vary according to age ($p < 0.05$).

There was a significant difference between the mean scores of TA between men and women ($p < 0.05$). TA, TW, IU-F1, "uncertain events are negative and should be avoided (IU-F2)" and "uncertainty leads to the inability to act (IU-F4)" mean scores were significantly higher in single individuals than in married individuals ($p < 0.05$, Table 3).

According to their professional status, TP, TA, TM-total, and IU-F1 levels differed significantly in patients with GAD than in those with CG. TP levels in housewives and TA, TM-total, and IU-F1 levels in students were higher than those in other professional groups in the PG ($p < 0.05$, Table 3).

TA, TM-total, IU-F1, and IU-F2 subscale levels were significantly higher in patients with a history of psychiatric

treatment than in those without psychiatric treatment ($p < 0.05$, Table 3).

In non-smokers, TP, TW, TM-total, IU-F1 and "being uncertain is unfair (IU-F3)" subscale scores were significantly higher than smoker ($p < 0.05$, Table 3). TM-total and IU-F4 subdimensions were significantly higher in alcohol users ($p < 0.05$, Table 3).

There was no significant difference between education level, place of residence, family history of psychiatric disease, and IU and TM levels ($p > 0.05$).

It was determined that there was a positive significant relationship between IU and TM levels ($r = 0.248$, $p < 0.05$, Table 4). A positive significant relationship was found between anxiety and depression levels ($r = 0.660$, $p < 0.001$, Table 4), IU ($r = 0.499$, $p < 0.001$) and TM total scores ($r = 0.287$, $p = 0.001$, Table 4). A positive significant relationship was found between depression levels and IU ($r = 0.480$, $p < 0.001$, Table 4) and TM total scores ($r = 0.480$, $p < 0.001$, Table 4).

There was a negative significant relationship between the average age and BAI ($r = -0.252$, $p = 0.004$), BDI ($r = -0.343$, $p < 0.001$), and the total and subscale scores of IU ($r = -0.173$, $p = 0.004$) and TM ($r = -0.313$, $p > 0.05$) patients with GAD (Table 4).

Discussion

This study examined the relationship between uncertainty intolerance and TM skills in people with GAD and whether this relationship differs according to sociodemographic data. To the best of our knowledge, this is the first study to

Table 2. Comparison of scale scores of cases

	Group		Statistical analyze			
	GAD (Mean ± SD)	Control (Mean ± SD)	t	df	95% CI of the difference	
					Lower	Upper
BAI	28.81±12.32	8.10±9.72	14.843	243.768	17.961	23.457
BDI	22.54±12.52	7.92±9.35	10.542	239.549	11.892	17.358
Intolerance of uncertainty scale (IUS)						
IU-total	90.16±21.13	65.55±22.97	8.809	241.902	19.107	30.114
IU-F1	33.56±8.45	23.84±9.15	8.720	242.221	7.527	11.920
IU-F2	25.12±6.91	17.78±7.25	8.204	244.476	5.583	9.111
IU-F3	13.63±4.30	10.68±4.24	5.473	247.595	1.889	4.013
IU-F4	17.85±4.39	13.26±4.78	7.906	241.846	3.446	5.732
Time management inventory (TMI)						
TM-total	86.98±15.99	75.46±16.36	5.637	246.001	7.499	15.554
TP	54.92±12.29	47.53±13.92	4.442	238.331	4.113	10.669
TA	20.88±5.84	17.40±3.59	5.736	218.576	2.283	4.673
TW	11.19±3.98	10.53±3.75	1.344	249.000	-0.306	1.621

* $p < 0.05$, t: Independent sample test value, CI: Confidence interval, BAI: Beck anxiety inventory, BDI: Beck depression inventory, IU-F1: Uncertainty is stressful and upsetting, IU-F2: Unexpected events are negative and should be avoided, IU-F3: Being uncertain is unfair, IU-F4: Uncertainty leads to the inability to act, TP: Time planning, TA: Time attitudes, TW: Time wasters, df: Degree of freedom, GAD: Generalized anxiety disorder, SD: Standard deviation

Table 3. Time management inventory and intolerance of uncertainty scale mean score distribution according to sociodemographic characteristics of those with GAD												
	n=131	BAI	BDI	IU-F1	IU-F2	IU-F3	IU-F4	IU-Total	TP	TA	TW	TM-total
Age group (mean rank)												
18-24 year	43	75.84	79.15	75.41	72.10	71.47	73.85	74.37	64.83	82.99	71.35	73.79
25-34 year	41	65.27	66.41	70.68	68.70	68.59	68.40	70.12	72.84	66.77	64.56	70.39
35-44 year	18	66.81	65.22	67.64	65.36	62.83	67.92	66.50	58.39	49.61	59.83	51.61
45 year and upper	29	51.95	46.40	44.41	53.53	56.21	49.78	47.50	62.79	49.90	63.93	57.17
Chi-square		6.89	12.92	12.70	4.46	3.16	7.39	9.51	2.31	17.26	1.48	6.52
df		3	3	3	3	3	3	3	3	3	3	3
p*		0.075	0.005	0.005	0.216	0.368	0.060	0.023	0.511	0.001	0.686	0.089
Sex (mean ± SD)												
Male	63	24.79±11.89	20.97±13.37	32.75±8.22	24.78±6.60	13.27±3.88	17.56±4.26	88.35±70.12	54.59±12.01	19.51±5.26	11.05±3.61	85.14±88.69
Female	68	32.53±11.60	24.04±11.57	34.32±8.65	25.44±7.22	13.96±4.65	18.12±4.52	91.84±71.96	55.22±12.62	22.15±6.10	11.32±4.32	15.22±16.61
t		-3.765	-1.425	-1.070	-0.550	-0.919	-0.733	-0.947	-0.294	-2.657	-0.398	-1.276
df		127.673	123.080	128.911	128.977	127.653	128.956	128.996	128.906	128.342	127.635	128.985
p*		<0.001	0.157	0.287	0.583	0.360	0.465	0.345	0.769	0.009	0.692	0.204
Marital status (mean ± SD)												
Single	83	29.40±11.60	24.08±12.88	35.24±7.92	26.16±7.05	14.10±4.54	18.46±4.22	94.13±70.49	54.48±13.10	21.87±5.61	11.90±3.72	88.25±17.37
Married	48	27.79±13.55	19.88±11.51	30.67±8.65	23.33±6.34	12.81±3.75	16.79±4.52	83.60±70.13	55.67±10.84	19.17±5.90	9.96±4.15	84.79±13.17
t		0.688	1.930	3.008	2.357	1.745	2.122	2.824	-0.558	2.570	2.682	1.286
df		86.405	107.435	91.314	106.944	113.559	129.000	101.230	113.514	94.170	89.784	119.701
p*		0.493	0.056	0.003	0.020	0.084	0.036	0.006	0.578	0.012	0.009	0.201
Professional status (mean rank)												
Employee	55	66.59	68.44	65.36	70.17	65.80	67.89	67.85	70.68	62.97	62.42	67.29
Officer	14	66.50	68.32	79.29	67.14	78.57	71.46	74.89	71.11	65.82	64.50	68.86
Retired	8	54.38	48.00	41.06	47.19	57.50	43.50	42.13	27.06	34.44	64.75	25.75
Student	30	73.00	70.47	80.15	68.28	75.48	71.27	74.98	59.03	84.03	80.58	72.22
Housewife	24	59.48	59.48	50.33	59.19	50.10	59.40	53.31	73.98	61.02	57.27	67.02
Chi-square		2.497	3.205	13.467	3.533	8.073	4.57	8.428	11.591	13.109	6.258	9.968
df		4	4	4	4	4	4	4	4	4	4	4
p*		0.645	0.524	0.009	0.473	0.089	0.334	0.077	0.021	0.011	0.181	0.041
Psychiatric treatment history (mean ± SD)												
Yes	84	31.29±11.82	23.62±12.06	34.55±8.29	26.04±6.78	14.48±4.17	18.05±4.44	93.11±20.58	55.64±12.67	22.10±5.27	11.83±4.02	89.57±16.16
No	47	24.38±12.06	20.62±13.20	31.81±8.54	23.49±6.90	12.11±4.13	17.49±4.32	84.89±71.279	53.62±11.61	18.70±6.22	10.04±3.68	82.36±14.75
t		3.164	1.287	1.780	2.039	3.139	0.702	2.144	0.927	3.157	2.584	2.592



Table 3. continued												
	n=131	BAI	BDI	IU-F1	IU-F2	IU-F3	IU-F4	IU-Total	TP	TA	TW	TM-total
df		93.726	88.334	93.045	93.954	96.168	97.436	92.695	102.508	82.946	102.730	102.878
p*		0.002	0.201	0.078	0.044	0.002	0.484	0.035	0.356	0.002	0.011	0.011
Cigarette (mean ± SD)												
Yes	61	31.46±12.90	24.87±14.34	34.03±9.08	26.57±7.17	13.85±4.44	17.74±4.12	92.20±22.43	57.33±11.69	21.75±6.14	12.75±3.65	91.84±15.99
No	70	26.50±11.39	20.51±10.37	33.16±7.91	23.86±6.46	13.43±4.19	17.94±4.64	88.39±19.92	52.81±12.49	20.11±5.50	9.83±3.77	82.76±14.86
t		2.317	2.009	0.584	2.265	0.560	-0.268	1.022	2.135	1.600	4.502	3.350
df		120.739	129.000	119.914	121.847	124.230	128.948	121.092	128.332	121.516	127.538	123.468
p*		0.022	0.047	0.560	0.025	0.577	0.789	0.309	0.035	0.112	<0.001	0.001
Alcohol (mean ± SD)												
Yes	50	30.12±12.91	23.66±14.61	34.92±8.55	26.26±7.98	14.02±4.41	18.86±4.04	94.06±22.52	57.00±11.43	22.06±5.78	12.00±3.82	91.06±16.16
No	81	28.00±11.95	21.85±11.07	32.75±8.33	24.42±6.10	13.38±4.24	17.22±4.50	87.75±19.98	53.63±12.69	20.15±5.79	10.69±4.02	84.47±15.46
t		0.939	0.802	1.439	1.488	0.816	2.158	1.624	1.572	1.837	1.866	2.306
df		97.828	129.000	101.796	129.000	100.774	112.540	94.53	112.201	104.041	107.944	100.382
p*		0.350	0.424	0.153	0.139	0.416	0.033	0.108	0.119	0.069	0.065	0.023

*p<0.0, t: independent sample t-test value, df: Degree of freedom, N: Number, BAI: Beck anxiety inventory, BDI: Beck depression inventory, IU-F1: Uncertainty is stressful and upsetting, IU-F2: Unexpected events are negative and should be avoided, IU-F3: Being uncertain is unfair, IU-F4: Uncertainty leads to the inability to act, TP: Time planning, TA: Time attitudes, TW: Time wasters, SD: Standard deviation, GAD: Generalized anxiety disorder

evaluate the relationship between IU and TM in patients with GAD. In our study, it was found that BAI, BDI, IU, and TM levels were higher in people with GAD than in those without GAD, and that this difference may vary according to age, gender, and various sociodemographic data, and that there was a positive relationship between IU and TM.

Anxiety and depression levels were found to be higher in the PG group than in the CG. In GAD, anxiety and depression symptoms frequently occur together. The high level of these symptoms in the participants is an expected finding.

Scale scores of those with GAD, except for IU and TW, were higher than those of the CG. In GAD, IU can cause anxiety symptoms. In a study conducted by Watts et al. (19), it was found that IU and negative problem orientation predicted GAD symptoms, whereas positive beliefs about worry and cognitive avoidance were less important in predicting GAD symptoms. Ren et al. (20) stated that the relationship between the divergent dimension of IU and various symptoms of GAD may provide some references for prevention and interventions related to GAD, and that targeting the component "I am frustrated by not having all the information I need" may be more effective in reducing symptoms. On the other hand, inadequate TP reduces individual satisfaction due to insufficient time allocated to personal and social activities, increases stress, and affects the acquisition of positive personality traits such as decision-making, leadership, and critical thinking (21). In fact, studies conducted on nursing and midwifery students stated that as students' anxiety levels increase, their TM skill decreases (22). The findings of our study support the findings in the literature.

When those with GAD were examined in terms of sociodemographic characteristics, TA was higher in women than in men, but no difference was detected in terms of IU levels and other TM subscale scores. It was thought that this situation had a sociocultural background and might have been related to the level of upbringing. Studies have found that women can manage their time better than men (9,10,22). The findings of our study are compatible with these findings.

The levels of TA, TW, IU-F1, IU-F2, and IU-F4 were significantly higher in single people than in married people. Marriage is an institution that ensures order in human life. It can motivate individuals and relieve their anxiety despite uncertainty and TP. The findings of our study support this view.

In terms of their occupational status, significant differences were observed in TP, TA, and TM-total levels and IU-F1 levels in those with GAD. TP levels in housewives and TA, TM-total, and IU-F1 levels in students were higher than those in other professional

Table 4. Relationships between age and scale scores in GAD group

	Mean ± SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	r	32.76±11.82	-										
	p												
2. BAI	r	28.81±12.32	-0.252**	-									
	p		0.004										
3. BDI	r	22.54±12.52	-0.343**	0.660**	-								
	p		<0.001	<0.001									
Intolerance of uncertainty scale													
4. IU-Total	r	90.16±21.13	-0.313**	0.499**	0.480**	-							
	p		<0.001	<0.001	<0.001								
5. IU-F1	r	33.56±8.45	-0.369**	0.479**	0.447**	0.940**	-						
	p		<0.001	<0.001	<0.001	<0.001							
6. IU-F2	r	25.12±6.91	-0.224*	0.452**	0.510**	0.881**	0.728**	-					
	p		0.010	<0.001	<0.001	<0.001	<0.001						
7. IU-F3	r	13.63±4.30	-0.177*	0.442**	0.323**	0.804**	0.710**	0.630**	-				
	p		0.043	<0.001	<0.001	<0.001	<0.001	<0.001					
8. IU-F4	r	17.85±4.39	-0.270**	0.333**	0.330**	0.831**	0.758**	0.647**	0.534**	-			
	p		0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
Time management inventory													
9. TM-Total	r	86.98±15.99	-0.173*	0.287**	0.480**	0.248**	0.239**	0.322**	0.054	0.173*	-		
	p		0.048	0.001	<0.001	0.004	0.006	<0.001	0.543	0.049			
10. TP	r	54.92±12.29	-0.043	0.149	0.370**	0.059	0.048	0.168	-0.099	0.024	0.870**	-	
	p		0.623	0.089	<0.001	0.504	0.590	0.055	0.263	0.789	<0.001		
11. TA	r	20.88±5.84	-0.332**	0.379**	0.490**	0.396**	0.393**	0.386**	0.246**	0.301**	0.631**	0.243**	-
	p		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	0.005	
12. TW	r	11.19±3.98	-0.074	0.138	0.067	0.232**	0.236**	0.207*	0.159	0.180*	0.405**	0.052	0.317**
	p		0.400	0.117	0.446	0.008	0.007	0.018	0.070	0.040	<0.001	0.555	<0.001

*p<0.05, BAI: Beck anxiety inventory, BDI: Beck depression inventory, IU-F1: Uncertainty is stressful and upsetting, IU-F2: Unexpected events are neative and should be avoided, IU-F3: Being uncertain is unfair, IU-F4: Uncertainty leads to the inability to act, TP: Time planning, TA: Time attitudes, TW: Time wasters, SD: Standard deviation

groups. In a study conducted in Pakistan, it was suggested that being a housewife was among the factors positively associated with anxiety and depressive disorders (23), and arguments with spouses and relationship problems with the mother-in-law were positively associated with GAD. In a study conducted by Çulha (24) on healthcare workers, it was stated that the GAD of married people was lower than that of single people, and there was no difference in their IU levels.

A study conducted on university students showed that there was a significant negative relationship between students' TM skills and anxiety levels (10). Kırıcı (25) found that the trait anxiety levels of unemployed women were higher than those of working women. TM skills of those with high anxiety levels also decrease. These findings are consistent with the findings of our study.

It was observed that the TA, TM-total, IU-F1, and IU-F2 levels of patients with a history of psychiatric treatment

were higher than those without a history of psychiatric disease in the PG. People with GAD who are distressed by uncertainty and avoid uncertain events may experience anxiety and worry due to psychiatric disorders in their past experiences. In this regard, it can be predicted that these people's uncertainty levels will be high. In addition, these people may have different perspectives on the concept of time during the disease process. TM skills can improve with experiences during the previous disease process.

It was found that the levels of TP, TW, and TM-total, and IU-F1 and IU-F3, were higher in non-smokers than in smokers. In a study by Özdemir et al. (26), the perceived stress levels of nurses who smoke were high. In a study by Şimşek (27) on university students, it was found that IU levels were higher in non-smokers. Despite these findings, Coşkun (28) reported that smoking does not affect IU levels.

While periods of stress increase the prevalence of smoking (29), smoking also increases stress and anxiety (30).

A study conducted by Xu et al. (31) showed that regardless of smoking level, improving health-related knowledge, TM awareness, and self-control ability can contribute to reducing the prevalence of smoking behavior. Smoking behavior can increase anxiety levels and negatively affect IU and TM levels. Although there are different results in the literature, according to the findings of our study, the high levels of IU and TM in non-smokers may be because these people have GAD.

Another finding of our study was that TM-total and the IU-F4 sub-dimension were higher in alcohol users than in non-alcohol users. Alcohol use, which is used to eliminate daily problems and create temporary comfort, becomes a habit over time. Kraemer et al. (32) examined the role of IU in terms of drinking reasons among university students, revealed that individuals who cannot tolerate uncertainty consume more cigarettes alcohol and marijuana. This suggests that IU is associated with drinking to manage or avoid negative emotions and that interventions aimed at reducing IU may be helpful in reducing problematic alcohol consumption in patients with GAD. Alcohol use may reduce anxiety levels in people with GAD, who are prevented from taking action in uncertain situations, and may play a role in relieving stress that negatively affects TM. The reason why people with GAD use alcohol is that it may be effective in improving uncertainty and TM in relation to reducing anxiety.

It has been determined that there is a significant positive relationship between IU and TM in patients with GAD. A study conducted in Tehran found a negative relationship between TM levels and state and trait anxiety levels (33). In a study conducted in our country, it was stated that TM skills decrease as the level of anxiety increases (21). In light of these findings, it can be stated that as the IU levels of those with GAD increase, their TA and TW behaviors increase.

A positive significant relationship was found between anxiety and depression levels, IU, and TM scores. A positive significant relationship was found between depression levels and IU and TM scores. In a study by Belge (3), a significant positive relationship was found between IU, anxiety, and depression symptoms. In a study conducted on university students, a negative relationship was found between students' TM skills and their depression-anxiety and stress levels (9). Interestingly, in our study, high levels of anxiety and depressive symptoms in the PG positively affect TM skills. This may be because of partial recovery due to the effect of antidepressant medications used by people with GAD.

It has been found that there is a negative relationship between the average age of patients with GAD and their IU and TM levels. In a study conducted on individuals with chronic diseases, IU levels decreased with age (34). On the

other hand, in a study conducted on university students, it was stated that the age variable was not related to the IU (35). In a study conducted by Kaya et al. (22), it was shown that students' TM skill levels did not change according to age. It can be stated that the levels of IU and TM in people with GAD decrease with age, and this may be related to the change in the way they approach events with advancing age.

The results of this research are important in terms of investigating whether there is a relationship between IU and TM in people with GAD, guiding future studies, and adding to the literature the effect of sociodemographic characteristics on the relationship between IU and TM skills in people with GAD. The findings obtained because of the research were interpreted and evaluated, and these findings were discussed by comparing them with other research findings in the literature.

Study Limitations

Our study has several limitations. One limitation of this study is related to the scales used. The focus of this study and the questions sought to be answered under its other subheadings are limited to the measurement capabilities of the IU and TM inventories. Therefore, the findings can be strengthened if the relationship between IU and TM levels is evaluated using different inventories. Another limitation may be specific to the demographic information form. Further studies can be designed with more detailed demographic questions. Because this was a cross-sectional study, causal inferences are limited. Although the above limitations and assumptions constitute a limitation, the relationship between IU and TM in patients with GAD has not been directly examined. In this respect, it was thought that our study could contribute to the literature.

Conclusion

IU, which contributes to the development and maintenance of GAD and plays an important role in its symptomatology, is effective in the development of TM skills in these individuals. This interaction may differ depending on sociodemographic characteristics such as age and gender. Broader sociodemographic characteristics may generate new findings on how IU in GAD affects TM. The evidence from this study warrants further research to determine whether specific aspects of IU and TM may aid in the treatment of GAD. It would also be valuable to conduct further research into how the relationship between IU and TM plays a role in the development of other anxiety disorders and how it contributes to the comorbidity of these disorders.

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Ethics

Ethics Committee Approval: The study protocol was approved by the Institutional Ethics Committee of University of Health Sciences Türkiye, Haydarpaşa Numune Training and Research Hospital (approval no: 2023/71/4368) and conducted in accordance with the Declaration of Helsinki.

Informed Consent: Written informed consent was obtained from all participants before registration.

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