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RESEARCH

The Relationship Between Coping Styles and Avoidance on Posttraumatic Growth in Type II Diabetes Patients

Tip-II Diyabetli Hastalarda Travma Sonrası Büyüme Üzerinde Baş Etme Stilleri ve Kaçınma Arasındaki İlişki

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Abstract

Although there is a great deal of literature dedicated to the adverse effects of diabetes-related stress in these patients, the concept of posttraumatic growth has been studied in a few studies. The present study aims to examine the possible associations of the stressfulness of event, coping strategies, number of hospitalizations, number of children, and income on the posttraumatic growth in patients with diabetes. For this purpose, patients with Type-II diabetes (n=218) were recruited from various hospitals in Turkey. The model which is based on the "Life Crises and Personal Growth Model" of Schaefer and Moos was tested. Results revealed that when the effect of the number of hospitalizations, number of children, and income were controlled, higher problem-focused coping, seeking social support, avoidance coping styles, and cognitive avoidance were associated with higher posttraumatic growth. Considering the interventions to patients with diabetes in clinical settings, professionals specifically focus on problem-focused coping, seeking social support and avoidance.

Keywords*:* Posttraumatic growth, diabetes mellitus, stressful event, coping strategies.

Öz

Diyabetli hastalarda diyabet kaynaklı stresin olumsuz etkilerini araştıran çok sayıda çalışma bulunmasına rağmen bu hastalarda travma sonrası gelişim ile ilgili çok az sayıda çalışma mevcuttur. Bu çalışma, diyabetli hastalarda stres, başa çıkma stratejileri, hastanede yatış sayısı, sahip olunan çocuk sayısı ve ailenin toplam aylık geliri arasındaki olası ilişkinin travma sonrası gelişme üzerindeki etkisini incelemeyi amaçlamaktadır. Bu amaçla, Türkiye'deki çeşitli hastanelerde yatmakta olan Tip-II diyabetli hastalardan veri toplanmış (n=218) ve Schaefer ve Moos'un "Yaşam Krizi ve Kişisel Gelişim Modeline" dayanan araştırma modeli test edilmiştir. Araştırmanın bulguları, hastaneye yatış sayısının, çocuk sayısının ve aylık gelirin etkisi kontrol edildiğinde, yüksek orandaki sorun odaklı başa çıkmanın, sosyal destek arayışının, kaçınma baş etme stratejisinin ve bilişsel kaçınmanın travma sonrası gelişim ile ilişkili olduğunu ortaya koymuştur. Diyabetli hastalara klinik ortamlarda yapılan müdahaleler dikkate alındığında, alanda çalışan uzmanlar özellikle hastaların sorun odaklı başa çıkma, sosyal destek arayışı ve kaçınma baş etme stratejileri üzerine odaklanmalıdır.

Anahtar sözcükler: Travma sonrası gelişim, diyabetes mellitus, stresli olay, başa çıkma stratejileri.

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DIABETES is one of the commonly seen illnesses affecting the life quality of patients (Kramer et al. 2000) and leading to emotional stress. It comes with a series of life-altering maintenance strategies. Patients with diabetes experience difficulty during illness since they try to cope with several complications that come with the illness (Horsch et al. 2007), and they must change their lifestyles completely after receiving the diagnosis. Therefore, the course of illness is difficult for these patients. Research conducted on the effects of diabetes-related stress both on adult patients with diabetes (Goodwin and Davidson 2005) and parents of children patients with diabetes (Landolt et al. 2002) showed that posttraumatic stress disorder (PTSD) reactions had been observed in the participants after the diagnosis. Moreover, regarding the nature of the illness, patients with diabetes are shown to adapt to the illness psychologically, and they learn to manage their illness or to develop ineffective coping strategies (Larranaga et al. 2011).

While several studies focus mostly on the adverse effects of diabetes, the positive effects of the illness have not been examined enough (Chiba et al. 2014, Guha and Carson 2014). Regarding the positive effects, resiliency (Wee et al. 2005) and spiritual growth (Cagle et al. 2002) have been mentioned in the literature. On the contrary, posttraumatic growth (PTG), which consists of several changes after stressful life experiences including an appreciation of life, the increment in social relationships and observing new possibilities of life (Tedeschi and Calhoun 2004) among patients with diabetes has been studied in relatively few studies (Senol-Durak 2014, Dirik and Gocek-Yorulmaz 2018).

In the PTG literature, "Life Crises and Personal Growth Model" is accepted as a comprehensive model (Schaefer and Moos 1998), and it has been examined in various samples such as patients suffering from bone marrow transplantation (Windows et al. 2005) and heart disease (Senol-Durak and Ayvasik 2010). In this model, the role of cognitive processing has a mediator role in the relationship of PTG with individual and environmental factors. Receiving higher social support (Senol-Durak and Ayvasik 2010, Yeung and Lu 2018) and having more children (Senol-Durak 2007, Turner-Sack et al. 2012), which were examined as parts of environmental factors, were significantly related to PTG. Also, one of the socio-demographic variables, income was investigated in the literature. The controversial findings in the literature demonstrated that examining income and PTG relationship is so important. Having a lower income (Milam et al. 2004, Karanci and Erkam 2007) and a higher income (Ho et al. 2011, Felix et al. 2015) were correlated with PTG in several studies. However, the relationship between income and PTG were not significantly associated in another study (Felix et al. 2015). Besides, individual factors such as having certain personality traits were correlated with PTG. Some of these personality traits were hardiness and self-esteem (Senol-Durak and Belgin Ayvasik 2010). Time elapsed since the diagnosis (Polatinsky and Esprey 2000), and perception of the illness (having a better perception of prognosis and having lower threat) (Senol-Durak and Ayvasik 2010) were examined as event-related factors affecting the PTG scores of patients. Also, having a perceived threat by an event mentioned being a factor stimulating cognitive processing (Tedeschi and Calhoun 2004). Also, being threatened by an event mentioned as a factor stimulating cognitive processing (Tedeschi and Calhoun 2004). However, other event-related factors such as length

of hospitalization and hospitalization status did not have a significant effect on PTG (Windows et al. 2005).

In addition to the event-related factors, positive, active, and problem-focused coping strategies were mentioned to be correlated with PTG in the sample of cancer patients (Windows et al. 2005, Schmidt et al. 2012). Additionally, acceptance oriented coping strategies were found significantly associated with higher PTG among adolescent cancer survivors (Turner-Sack et al. 2012). Besides, adaptive coping strategies were positively correlated with PTG, and it mediated the relationship between social support or uncontrollability and PTG in the sample of cancer patients (Cao et al. 2018). Similarly, positive reframing had a mediator role in the relationship with attachment style and PTG (Schmidt et al. 2012). Likewise, positive coping and coping by depending others were positively correlated with PTG (Tomita et al. 2017) and benefit finding (Tran, et al. 2011). Moreover, positive coping strategies were associated with PTG longitudinally (6 months to two years) among breast cancer survivors (Hamama - Raz et al. 2019). Also, in review articles, higher emotional or instrumental support and higher PTG relationship were emphasized (Barskova and Oesterreich 2009). Previous studies have been mostly investigated in adaptive coping strategies. Fewer studies investigated about adaptive and maladaptive coping strategies (Bjorck and Byron 2014, Yu et al. 2016). In the sample of army recruits, negative coping strategies mediated the relationship between depression and PTG (Yu et al. 2016). Moreover, adaptive coping strategies were associated with PTG while avoidance coping styles were associated with higher intrusion, hyperarousal, and cognitive avoidance (Kirby et al. 2011). This study suggests exploring coping strategies and stressfulness of event relationships together to evaluate PTG. In other words, coping-PTG studies underestimate the role of the stressfulness of the event.

As regards the stressfulness of the event, it was also found to be positively correlated with PTG (Weinrib et al. 2006). If the traumatic event is evaluated as severe at the moderate level, individuals are more likely to develop PTG (Tedeschi et al. 1998). In this context, an absence of intrusions might be an indicator of an illusionary PTG (Senol-Durak 2007). Also, the increment in intrusion scores was found to be associated with an increase in posttraumatic growth scores of young adults experienced trauma (Calhoun et al. 2000). However, it is highlighted that the stressfulness of event is underestimated in some studies (Wortman 2004). Therefore, there are controversial findings in the literature.

The effect of diabetes-related threats on the psychological well-being of patients has been extensively mentioned in the literature. However, the positive impact of the illness (i.e., posttraumatic growth) have not been studied much (Senol-Durak 2014, Dirik and Gocek-Yorulmaz 2018). The present study aimed to investigate individual factors, the role of coping styles, and the stressfulness of events in patients with diabetes by considering "Life Crises and Personal Growth Model" (Schaefer and Moos 1998). Obtaining associations about PTG in various life crises is highlighted as valuable (Barskova and Oesterreich 2009) considering influences on treatment maintenance (Turner et al. 2011). Individual factors (income), environmental factors (the number of children),event-related factors (the number of hospitalizations, type of treatment) and their associations with coping styles and stressfulness of the event (intrusion, hypervigilance, avoidance) on the PTG is aimed to investigate in the present study.After controlling for

the possible effects of the individual and environmental factors (income, hospitalization and the number of children) by considering the theoretical model, a hierarchical regression analysis in three sets run to test the hypotheses: i) Higher "planful problem solving (PPS)", "seeking social support (SSS)", and "escape-avoidance (EA)" and lower "accepting responsibility (AR)", "keep to self (KS)", "seeking refuge in fate (SRF)", and "seeking refuge in supernatural forces (SRSF)" will be associated with higher PTG ii) higher intrusion, higher hypervigilance, and higher avoidance will be related to higher PTG.

Method

Sample

The study was conducted on 218 patients with Type-II diabetes who were hospitalized due to having trouble to manage disease related complications. Mean age of patients was 52.08±8.30. The participants consisted of individuals who applied to hospitals in Bolu (n=96, 44.04%), Ankara (n=68, 31.19%), and Sivas (n=54, 24.77%). While the majority of them were (57.8%, n=126) women and others were (42.2%, n=92) men. 87.6% (n=191) were married, 8.7% (n=19) were widowed, 2.8% (n=6) were divorced, and 0.9% (n=2) were single. Regarding living place, 51.4% (n=112) of the sample reported to spend most of their lives in cities, 19.7% (n=43) in villages, 15.6% (n=34) in big city centers, 9.6% (n=21) in towns, and 3.7% (n=8) in ghettos in big cities. Concerning the level of education; 50.9% (n=111) graduated from primary school, 29.4% (n=64) were literate, 8.7% (n=19) graduated from high school, 6.0% (n=13) graduated from middle school, and 5% (n=11) graduated from college. All participants had Type-II diabetes and they were all currently being treated in hospital. Also, 83.5% (n=182) had a history of prior hospitalization, while for the 16.5% (n=36), it was their first time being inpatient. Regarding treatment type, for the 31.7% (n=69) of them were receiving medication, for the 11.9% (n=26) of them were receiving insulin. Besides, 54.1% (n=118) were receiving both insulin and medication, and 2.3% (n=5) were using other treatment methods (i.e., alternative medicine, medicine plus dietary, insulin plus dietary, and just dietary).

Measures

Demographic Information Form

It includes seven questions. It was administered to participants to gather gender, education level (primary school, middle school, high school, college, literate), living place (city, village, big city center, town, ghettos), the number of children, whether having a history of prior hospitalization (yes/no question), current hospitalization (yes/no question), treatment type (medication, insulin treatment, insulin plus medication, other treatment type). Demographic information form was developed based on current literature (Senol-Durak 2014).

The Post Traumatic Growth Inventory (PTGI)

It is developed to evaluate the positive changes in the face of traumatic events. It is a 21-item 6-Likert type scale (0 to 5; 0= Never experience 5= Extremely experience), including five factors (Relating to Others, New Possibilities, Spiritual Change, Personal Strength, and Appreciation of Life) explaining the 60% of the variance (Cohen et al.

1998) and with .90 internal-consistency and .71 test-retest reliability (Calhoun et al. 2000). Scores are ranging between 0 to 105, and higher scores indicate higher posttraumatic growth. The scale was adapted into Turkish in a sample of arthritis patients (Dirik 2006). Internal consistency of the scale was .94, and a three-factor formulation (Change in Relationships, Change in View of Life, Change in Self Perception) provides a better fit having internal consistency .86, .87, and .88, respectively. In the present study, internal consistency for the total scale was .95.

Impact of Event Scale-Revised Form (IES-R)

It is a 22 item 5-Likert Type Scale (0= Never 4= Very frequently) to assess the intrusions, hypervigilance, and avoidances (Horowitz et al. 1979). The frequency of each symptom experienced during the week before the administration of the scale was evaluated. Items about nightmares, reoccurring thoughts, feelings, and images were added to the revised version, which is more sensitive to the changes with time (Weiss and Marmar 1997). Rumination and avoidance scores are ranging between 0 to 32, while the hypervigilance score is ranging between 0 to 24 and higher scores indicate higher stressfulness of the event. According to the results of the study in which the Turkish version of IES-R was used, three factors were found; namely intrusion (ITR, reoccurring thoughts; Cronbach alpha = .90), hypervigilance (HYPER; Cronbach alpha = .90), and avoidance (AVOID; Cronbach alpha = .82) (Işıklı 2006). The IES-R had a high internal consistency (Cronbach alpha = .93) and strong correlations with similar constructs such as the Beck Anxiety Scale (r = .60) and the Brief Symptom Inventory (r = .72). The scale's internal consistency was ranged between .81 to .85 in the present study.

Turkish Version of Ways of Coping Questionnaire (TWCQ)

It was investigated by considering previous Lazarus and Folkman's questionnaires in the field (Senol-Durak et al. 2011). The scale consists of 31 items rated on a 5-point Likert-type scale (0= never use 4= Always use). A seven-factor model (planful problem-solving, PPS; seeking refuge in supernatural forces, SRSF; keep to self , KS; seeking social support, SSS; seeking refuge in fate, SRF; escape-avoidance, EA; and accepting responsibility, AR) was relevant in the sample of university students and community members with high internal consistency (.67 to .84). PPS (six items) scores are ranging between 0 to 24, and EA (five items) scores are ranging between 0 to 20 while the rest of each scale (having four items in each) scores are ranging between 0-16. Higher scores indicate higher use of coping styles. The scale's internal consistency was ranged between .60 to .85 in the present study.

Procedure

After obtaining the ethical and legal permissions from Abant Izzet Baysal University (Protokol Number: 901), Ankara Keçiören Education and Research Hospital (Protokol Number: 000109) and Provincial Directorates of Health (Protokol Number: 30996/012216) in Ankara, Bolu, and Sivas, the aim of the study was explained to the health staff to collect the data. The health staff helped the researchers to communicate with patients to explain the aim of the study. Informed consent was obtained from the volunteers who participated in this study. A paper-and-pencil questionnaire format was utilized rather than face-to-face interviews as it is shown in previous research that participants during the face-to-face meetings tend to respond in a more socially desirable manner and with low accuracy than computer-administered or paper-and-pencil

questionnaires (Podsakoff et al. 2003). The informed consent and the permission of the patients were taken before the applications. Participants answered their inventories and forms in their rooms with the help of psychologist. It took 20-30 minutes to complete scales.

Statistical Analysis

The statistical analyses were performed by using the Statistical Package for Social Science (SPSS-21) released 2012 (IBM, Armonk, NY, USA). Considering the cutoff p-value for determining significance, the threshold was established at .05 ($p \leq .05$). Descriptive values and correlations among the variables were analyzed before the main analyses. Regression analyses were conducted on the basis of results and current literature about the theory aforementioned above. Within the model, individual factors and environmental factors were entered into the equation at the first step, coping at the second step and stressfulness of the event at the last step.

Table-1: Correlations between variables and descriptive values of the variable

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PTG		.32***	.33***	.40***	.39***	.33***	.29***	-.07	-.02	.17**	.28***	-.19**	.16*
2. ITR			.79***	.20**	.19**	.15*	.15*	.06	-.04	.16*	.32***	-.25***	.25***
3. HYPER				.31***	.26***	.13	.15*	.04	.01	.20**	.32***	-.24***	.29***
4. AVOID					.25***	.10	.26***	-.04	.05	.13	.22***	-.14*	.11
5. PPS						.13	.25***	-.09	.18**	.20**	.16*	-.13	.01
6. SSS							.16*	-.06	-.37***	.12	.26***	-.04	.12
7. EA								-.03	-.02	.08	.13	-.03	.02
8. AR									.17*	-.01	.08	.07	-.07
9. KS										.09	.06	.02	.01
10. SRF											.24***	-.31***	.31***
11. SRSF												-.21***	.19**
12. Monthly Income$^{\Psi}$													-.24***
13. NmbrChld$^{\Psi}$													
X	55.03	10.99	10.36	12.22	18.35	9.08	11.10	4.77	7.79	14.78	4.67	1205.17	3.58
SD	24.84	8.47	7.10	7.39	4.54	4.05	4.59	4.25	5.73	2.38	3.10	717.94	1.57
Min (Possible)	0	0	0	0	0	0	0	0	0	0	0	100	0
Max (Possible)	104	32	24	32	24	16	20	16	16	16	16	5000	6

***p ≤ .001, **p ≤ .01, *p ≤ .05; PTG = Posttraumatic growth, ITR = Intrusion, HYPER = Hypervigilance, AVOID = Avoidance, PPS = Planful problem solving, SSS = Seeking social support, EA = Escape-avoidance, AR = Accepting responsibility, KS = Keep to self, SRF = Seeking refuge in fate, SRSF = Seeking refuge in supernatural forces, NmbrChld = Number of children.

Results

Descriptive values and correlations among the variables are presented in Table 1. The correlational analysis pointed out that PTG scores were closely related to the subscales of IES-R, income, and number of children. It was positively associated with Intrusion (r = . 32, p<0.001), hypervigilance (r = . 33, p<0.001), avoidance (r = . 40, p<0.001), planful problem solving (r = . 39, p<0.001), seeking social support (r = . 33, p<0.001), escape/ avoidance (r = . 29, p<0.001), seeking refuge in fate (r = . 17, p<0.01), Seeking refuge in supernatural forces (r = . 28, p<0.001), and Number of children (r = . 16, p<0.01). On the other hand, it was negatively associated with income (r = -. 19, p<0.01). Hierarchical multiple regression analyses were conducted to reveal the significant associates of PTG. Variables were entered into the equation via three steps. To control for the possible effects of monthly income, hospitalization, and a number of children, these variables were entered into the equation in the first step. The factors of coping styles (i.e., PPS, SSS, EA, AR, KS, SRF, and SRSF) were entered into the equation on the second step. The factors of the stressfulness of the event (ITR, HYPER, and AVOID) were entered into the equation on the last step..

Table 2. The results of the hierarchical multiple regression analyses

Predictors	B	β	t	df	F	R2	R2 Change	p
Constant	53.36							
I. Control Variables				3, 214	3.65	.049	.049	.013
Monthly income	.01	-.14	-1.98					.049
Hospitalization	.61	.05	.73					.466
Number of children	1.86	.12	1.69					.092
II. Coping Styles				7, 207	10.45	.297	.248	3.20^{e-11}
Planful problem solving	1.58	.29	4.48					1.21^{e-5}
Seeking social support	1.43	.23	3.37					.001
Escape-avoidance	1.04	.15	2.51					.013
Accepting responsibility	-.17	-.03	-.50					.620
Keep to self	.08	.02	.27					.787
Seeking refuge in fate	-.06	-.01	-.08					.933
Seeking refuge in supernatural forces	.98	.12	1.90					.059
III. Stressfulness of the Event				3, 204	8.19	.373	.076	3.57^{e-5}
Intrusion	.36	.12	1.33					.186
Hypervigilance	.11	.03	.32					.752
Avoidance	.85	.25	4.08					6.47^{e-5}

Hierarchical regression analysis revealed that, among the control variables, just monthly income had a significant association (β = -.14, t (214) = -1.98, p = .049) with PTG, and this variable explained 4.9 % of the variance (F [3, 214] = 3.65, p = .013). On the second step, PPS (β = .29, t (207) = 4.48, p = .001), SSS (β = .23, t (207) = 3.37, p = .001), and EA (β = .15, t (207) = 2.51, p = .013) were found to be significantly associated with PTG, and this variables increased explained variance to 29.7 % (F [7, 207] = 10.45, p = .001). On the last step, among the factors of stressfulness of the event, only AVOID (β = .25, t (204) = 4.08, p = .001) had significant association with PTG, and the explained variance increased to 37.3 % (F [3, 204] = 8.19, p= .001) (see Table 2).

Discussion

The associations among coping styles, the dimensions of the stressfulness of event and PTG were evaluated in the present study when the effect of a number of children, income, and the number of hospitalizations was controlled. Through considering "Life Crises and Personal Growth Model" (Schaefer and Moos 1998) as the theoretical framework, each dimension of the stressfulness of event and its association with coping styles were examined for the first time in the literature. Coping styles, stressfulness of the event (hypervigilance, intrusion, avoidance and posttraumatic growth variables) were being only assessed by self-report measures due to the nature of the constructs. None of these structures overlap each other so that they do not measure separate concepts.

Consistent with the research on breast cancer patients (Karanci and Erkam 2007), monthly income was indirectly related to PTG. Individuals with lower income received higher scores from PTG. Karancı and Erkam (2007) explained the relationship between income and PTG as individuals with lower income levels might feel a lack of control over life, which could increase their PTG scores. Parallel to this point of view, individuals with lower income levels had higher scores of PTG which might work as a control mechanism.

As regards coping styles, higher problem-focused coping, seeking social support, and avoidance were associated with higher PTG. Consistent findings were emphasized in other studies for problem-focused coping (Windows et al. 2005, Schmidt et al. 2012) and seeking social support (Barskova and Oesterreich 2009). Maladaptive coping strategies and PTG relationships were mentioned (Yu et al. 2016). In this respect, interestingly, the relationship between escape-avoidance and PTG was significant. This dimension includes behavioral avoidance or escape. As found before, in literature, avoidance coping style (i.e., to avoid distress going outside, dealing with the different hobby, etc.) was associated with higher cognitive avoidance (Kirby et al. 2011). Similarly, lower behavioral disengagement and higher PTG were associated with each other (Rosland et al. 2014). Therefore, it can be said that avoidance coping style might serve as a distraction. Also, distraction and its correlation with PTG in a study conducted with cancer patients supported the current results (Scrignaro et al. 2011). However, in Scrignaro's research, the significant association was not observed over six months. Therefore, they argue that avoidance coping style might be temporary coping style.

In addition to use avoidance coping style, associations between stressfulness of event and PTG was examined. In this respect, higher avoidant thinking style (i.e., tried to remove from memory, avoided letting self-get upset, decided not to talk about it) and higher PTG was significantly associated. When examining the effect of all dimensions of the stressfulness of the event, the model including hypervigilance dimension did not yield adequate results. Likewise in France (Brunet et al. 2003) and Spain samples (Báguena et al. 2001), insignificant results of hypervigilance may be related to psychometric properties of the scale. Moreover, in the present study, subjects were selected from only hospitalized patients. They might feel that everything is under the control of health care professionals. Therefore, the hypervigilance dimension did not yield significant results. Also, intrusion dimension did not produce adequate results. Controversial findings were seen in the literature.

Considering interventions for patients with diabetes in clinical settings, professionals specifically focus on problem-focused coping and seeking social support, which have significant associations. Professionals can encourage patients to use problem-focused coping and can enhance social support networks in providing support. Moreover, whether individuals are using escape/ avoidance coping in stressful circumstances should be examined in practice. When looking at directions of the relationship between variables, professionals may initially work with individuals with no or few children, individuals with higher income, and individuals with fewer hospitalizations to improve the life quality of the patients. It is emphasized that improving positive views (i.e., benefit finding) would help patients with respect to diabetes management (Tran et al. 2011). Therefore, further studies are encouraged to explore link between the PTG and adherence to diabetes treatment.

The current study was conducted only with inpatients with diabetes. Therefore, results should be approached with caution when applying to other patients with diabetes (i.e., diabetic outpatients, Type-I diabetes). In the future, the results of the present study will be tested by longitudinal research design. Also, the impact of coping mechanisms, (Bjorck and Byron 2014) other environmental resources (i.e., social support, marital support) (Reupert et al. 2015, Smith et al. 2015), diabetes-related variables (i.e., type of diabetes) should be taken into consideration while explaining the relationship between PTG and diabetes in a broader perspective.

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