



ORIGINAL ARTICLE

The relationship between depression, anxiety, personality traits and coping strategies of patients with euthyroid Hashimoto's Thyroiditis



M. Yıldız^{a,*}, Ş. Şahin^b, S. Batmaz^c, E. Songur^c, F. Kutlutürk^d

^a Department of Psychiatry, School of Medicine, Marmara University, Istanbul, Turkey

^b Department of Internal Medicine, School of Medicine, Gaziosmanpaşa University, Tokat, Turkey

^c Department of Psychiatry, School of Medicine, Gaziosmanpaşa University, Tokat, Turkey

^d Department of Internal Medicine, Endocrinology And Metabolism, School of Medicine, Gaziosmanpaşa University, Tokat, Turkey

Received 31 January 2017; accepted 6 June 2017

Available online 22 July 2017

KEYWORDS

Hashimoto
Thyroiditis;
Personality;
Coping strategy;
Anxiety;
Depression

Abstract

Background and objectives: We aimed to investigate the depression and anxiety levels and to explore the coping strategies and personality traits of patients with euthyroid Hashimoto Thyroiditis (HT).

Methods: The study population consisted of 108 outpatients with euthyroid HT. The participants completed the Hospital Anxiety and Depression Scale (HADS), the Big Five Personality Inventory (BFI), and the Coping With Problems Experienced Inventory (COPE).

Results: Depression scores were negatively correlated with emotion-focused and problem-focused coping style scores. Emotion-focused and problem-focused coping style scores were negatively correlated with neuroticism, and positively correlated with openness scores. Emotion-focused coping style scores were also positively correlated with agreeableness scores. Dysfunctional coping style scores were negatively correlated with conscientiousness scores. Higher agreeableness and anxiety scores as well as lower neuroticism scores were predictive of emotion-focused coping style scores. Problem-focused coping style scores were predicted by lower depression scores. Dysfunctional coping style scores were predicted by lower conscientiousness scores.

Conclusions: The present study points the importance of taking personality features and individual coping strategies into account when evaluating patients with HT. Determining the personality features and coping strategies might be useful for identifying patients in need of particular counseling and support.

© 2017 Asociación Universitaria de Zaragoza para el Progreso de la Psiquiatría y la Salud Mental. Published by Elsevier España, S.L.U. All rights reserved.

* Corresponding author.

E-mail address: mesutdr@gmail.com (M. Yıldız).

Introduction

Hashimoto's Thyroiditis (HT), which is a chronic inflammation of the thyroid gland, is considered the most common autoimmune disorder, and the most common endocrine disorder.¹ HT is the most common cause of hypothyroidism, and it is more likely to occur in women.² Many studies have shown a connection between stress and autoimmune thyroid disorders.³ Clinical and epidemiological studies investigating the relationship between autoimmune thyroid disorders and psychiatric disorders have reported inconsistent results.⁴ Some studies demonstrated that psychiatric disorders were more prevalent among patients with autoimmune thyroid disorders.^{4–6} On the other hand, certain studies showed that thyroid autoimmunity did not cause an increase in psychiatric morbidity.^{7–8} HT is associated with lower levels of quality of life as well as with physical and psychological problems.⁹

People utilize a variety of strategies in responding to stress. Coping is defined as the use of cognitive and behavioral strategies for dealing with the perceived pressures, demands, and emotions involved in stressful situations.¹⁰ Although there is no formal classification of coping strategies, Wong et al. suggested categorizing coping strategies into three groups: problem-focused coping strategies, emotion-focused coping strategies, and dysfunctional coping strategies.¹¹ Coping strategies are also important in dealing with physical illness and autoimmune disorders.¹² They enable the patient to adapt to problems and stressors arising from the disorder, such as pain, fatigue, limitations in mobility, and difficulties in daily life activities.¹³ It is well known that personality traits may impact the evaluation of stress, and affect the particular utilization of coping strategies.¹⁴

There is no research examining coping strategies and personality traits in patients with euthyroid HT. In the present study, we aimed to investigate the depression and anxiety levels of patients with euthyroid HT. We also intended to explore the coping strategies and personality traits in the same group. If the person's coping styles are determined, it may help the clinician to better identify the treatment goals and therapeutic efficacy of the treatments.

Therefore, it will be of value to have a better understanding of the coping strategies and personality traits of these patients to manage them in routine clinical practice.

Methods

Participants

The study population consisted of 108 outpatients (99 women, 91.7%) aged 18 and older (mean (*M*) age = 37.96 years, standard deviation (*SD*) = 10.06, range: 18–68 years) presenting to the internal medicine clinics of a university hospital. Patients in the study population suffered from HT. Participants were excluded from the study if they had a current diagnosis of any psychotic disorder, mental retardation, organic brain disorder, head trauma, degenerative neurological disorder, substance dependence, or medically uncontrolled chronic illness.

Measures

The interviewers completed a demographic and clinical data form, onto which they recorded the age, sex, marital status, level of education, place of residence, employment status, socioeconomic status, and substance use.

The participants completed the Hospital Anxiety and Depression Scale (HADS),¹⁵ the Big Five Personality Inventory (BFI),¹⁶ and the Coping With Problems Experienced Inventory (COPE).¹⁷ The HADS is used to measure the severity of depression, and it consists of two separate 7-item subscales. The BFI is a 44-item inventory that measures an individual on the big five dimensions of personality, i.e. extraversion vs. introversion, agreeableness vs. antagonism, conscientiousness vs. lack of direction, neuroticism vs. emotional stability, and openness vs. closedness to experience. The COPE is a 60-item, 4-point self-report scale consisting of 15 subscales. The COPE consists of three main groupings with five scales per group and four items per scale: (a) problem-focused coping: active coping, planning, restraint coping, seeking social support for instrumental reasons, and suppression of competing activities; (b) emotion-focused coping: positive reinterpretation and growth, religion, humor, acceptance, and seeking social support for emotional reasons; and (c) dysfunctional coping: focus on and venting of emotions, denial, behavioral disengagement, mental disengagement, and alcohol/drug use. Scores of all of the subscales may be used individually, or a composite score for emotion-focused, problem-focused, and dysfunctional coping styles may be computed. The Turkish versions of all of these scales were used in this study.^{18,19} In the Turkish version of HADS, the cut-off score for the depression and anxiety subscales were 7 and 10, respectively.

Procedure

All participants were interviewed face-to-face by the internal diseases specialist, and the measures were completed after the interviews at the outpatient clinic. The intake period lasted from July 2015 to December 2015. No compensation was offered to the participants.

Statistical analyses

All analyses were performed using *IBM SPSS for Windows, Version 22.0* (IBM Corp., 2013). Demographic and clinical data of the participants were analyzed by descriptive statistics. Bivariate Pearson product moment correlations between the psychometric scales were computed. To examine the unique associations between the demographic and clinical variables, i.e. age, sex, marital status (married vs. other), level of education (≥ 8 years vs. other), personality characteristics (BFI subscale scores), and the HADS subscale scores, a stepwise linear regression analysis using the backward method was performed. At each step any variable with a probability of $F \leq 0.05$ was retained in, and any variable with a probability of $F \geq 0.10$ was removed from the analysis. This stepwise selection continued until all of the variables were either included or excluded. The outcome variables were the composite subscale scores of the COPE. Statistical significance was set at a *p* value of <0.05 .

Table 1 Demographic and clinical characteristics of the participants.

	M (n)	SD (%)
Age (years)	37.96	10.06
Sex, female	99	91.7
Marital status, married	90	83.3
Level of education (years)	9.51	4.04
Place of residence, urban	62	57.4
Employment status, regular income job	28	26.2
SES, high	28	27.2
Substance use, present	7	7.56
HADS anxiety score	9.49	3.83
HADS depression score	6.96	3.74
Extraversion	26.51	5.41
Agreeableness	37.24	5.14
Conscientiousness	34.37	4.73
Neuroticism	25.95	6.62
Openness	35.89	6.04
Problem-focused coping	47.16	6.98
Emotion-focused coping	67.26	8.46
Dysfunctional coping	41.55	7.05

Ethics statement

After having been debriefed about the requirements of the study, only participants who consented were eligible for recruitment. The study was approved by the Clinical Research Ethics Committee (Turkey).

Results

Sample characteristics and group comparisons

The distribution of the demographic and clinical variables of the participants is shown in Table 1. Table 1 also presents the mean HADS subscale scores, the mean BFI subscale scores, and the mean composite subscale scores of the COPE.

Association of personality characteristics and coping styles with psychopathology

Results of the correlation analyses are presented in Table 2. Depression scores were negatively correlated with emotion-focused and problem-focused coping style scores. Anxiety scores were not significantly correlated with coping style scores. Emotion-focused and problem-focused coping style scores were negatively correlated with neuroticism, and positively correlated with openness scores. Emotion-focused coping style scores were also positively correlated with agreeableness scores. Dysfunctional coping style scores were only negatively correlated with conscientiousness scores.

Stepwise linear regression models

Results of the final steps of the stepwise linear regression models are presented in Table 3. Higher agreeableness and anxiety scores as well as lower neuroticism scores

Table 2 Correlation matrix of the variables.

	HADS-Anx	HADS-Dep	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness	Emotion-focused coping	Problem-focused coping	Dysfunctional coping
HADS-Anx	1	0.51**	-0.45**	-0.27*	-0.33**	0.61**	-0.38**	-0.02	-0.18	0.15
HADS-Dep		1	-0.36**	-0.19	-0.25*	0.33**	-0.37**	-0.25*	-0.33**	0.03
Extraversion			1	0.13	0.30**	-0.36**	0.42**	0.16	0.29	-0.21
Agreeableness				1	0.17	-0.30**	0.10	0.27*	0.04	-0.03
Conscientiousness					1	-0.34**	0.25*	0.10	0.18	-0.33**
Neuroticism						1	-0.17	-0.28*	-0.33**	0.17
Openness							1	0.28*	0.32**	-0.19
Emotion-focused coping								1	0.61**	0.23*
Problem-focused coping									1	-0.08
Dysfunctional coping										1

* $p < 0.05$.

** $p < 0.01$.

Table 3 Final steps of the stepwise linear regression analyses with coping scores as the outcome ($n = 108$).

Outcome	Predictors	B	SE	β	t	p	R ²	Adj R ²	SE	F	df _n , df _d	p
Emotion-focused coping	Constant	55.37	9.70		5.71	<0.001						
	Marital status	-3.34	1.41	-0.22	-2.37	0.020						
	Agreeableness	0.33	0.16	0.19	2.02	0.046						
	Neuroticism	-0.37	0.15	-0.27	-2.50	0.014	0.23	0.18	7.11	5.09	6, 101	<0.001
	Openness	0.25	0.14	0.17	1.74	0.085						
	HADS-Anx	0.77	0.25	0.37	3.09	0.003						
Problem-focused coping	HADS_Dep	-0.43	0.22	-0.20	-1.91	0.059						
	Constant	37.06	5.67		6.53	<0.001						
	Age	0.14	0.06	0.21	2.36	0.020						
	Openness	0.22	0.12	0.18	1.85	0.067	0.17	0.14	6.18	6.90	3, 104	<0.001
Dysfunctional coping	HADS_Dep	-0.48	0.17	-0.26	-2.77	0.007						
	Constant	63.39	5.38		11.79	<0.001						
	Level of education	-0.44	0.15	-0.26	-2.85	0.005	0.15	0.14	6.18	9.35	2, 105	<0.001
	Conscientiousness	-0.52	0.15	-0.32	-3.55	0.001						

Stepwise backward linear regression predictors: age, sex, marital status, level of education, personality characteristics, HADS-Anx, HADS_Dep.

were predictive of emotion-focused coping style scores. Problem-focused coping style scores were predicted by lower depression scores. Dysfunctional coping style scores were only predicted by lower conscientiousness scores.

Discussion

The present study aimed to explore the anxiety and depression levels, personality traits and coping strategies, and the association of coping strategies with clinical variables and personality traits in patients with HT. Our results demonstrated that depression was negatively correlated with emotion-focused and problem-focused coping style scores. Emotion-focused coping style scores were negatively correlated with neuroticism, and positively correlated with openness and agreeableness scores. Problem-focused coping style scores were positively correlated with openness scores and negatively correlated with neuroticism. Dysfunctional coping style scores were only negatively correlated with conscientiousness scores. Linear regression analysis showed that emotion-focused coping style scores were predicted by higher agreeableness and anxiety scores as well as lower neuroticism scores. Lower depression scores predicted problem-focused coping style scores. Lastly, lower conscientiousness scores predicted dysfunctional coping style scores.

The mean age of the patients with HT was 37.96 ± 10.06 , and 91% of the group consisted of women. The age and the sex distribution of our study are comparable to similar studies.^{4,20,21} The mean HADS anxiety and HADS depression scores of the patients were 9.49 ± 3.83 , and 6.96 ± 3.74 , respectively. HADS anxiety and HADS depression scores were below the cut-off points. Previous studies have demonstrated an association between the presence of mood or anxiety disorders and euthyroid HT.^{6,21} Contrary to these studies, some other studies found no association between thyroid autoimmunity and depression or anxiety.⁷⁻⁸ In a study exploring the psychiatric symptoms and diagnoses in thyroid disorders; Aslan et al. included 15 euthyroid HT patients and investigated the psychiatric symptoms of the group with HADS. The mean HADS anxiety and HADS depression scores of the study population were 6.3 ± 3.6 and 4.9 ± 4.2 , respectively.²⁰ Further, in a nationwide cohort study, it was demonstrated that risk of depression decreased after the treatment of thyroid dysfunction.²² Although we did not control for how much time the patients have been in a euthyroid state, the euthyroid status of the patient population in the present study might have been responsible for the subclinical depressive and anxious symptoms.

In terms of personality, the BFI scores showed that patients with euthyroid HT scored higher on agreeableness, conscientiousness, neuroticism and openness. Women scored higher in both the agreeableness and neuroticism domains of the BFI.²³ Additionally, a person's ratings on BFI has been found to change with aging, where agreeableness and conscientiousness score increase, and extroversion, neuroticism, and openness scores generally decrease.²⁴ The current results of the personality traits of patients with euthyroid HT are interesting and original, but must be interpreted with caution and the above mentioned information.

Results of the correlation analysis showed that higher levels of depression scores were correlated with lower levels of

emotion-focused and problem-focused coping style scores. Previous findings in the literature have generally shown a negative correlation between problem-focused coping and mental health, whereas emotion-focused coping has been associated with higher levels of psychopathology and functional impairment.^{25,26} It has also been demonstrated that the use of emotion-focused coping strategies increased the risk for the development of affective disorders.²⁷ The negative correlation of emotion-focused coping style scores and depression scores in the present study seems contradictory to these previous findings. A great majority of the present study is composed of women, and it is well known that women tend to use emotional coping strategies more frequently compared to men.²⁶ When it is impossible to change a stressor, e.g. medical problems such as HT, emotion-focused coping may be considered to be more adaptive than other strategies. It may be speculated that the lower use of the emotion-focused strategies in the present study might be associated with higher depressive scores since anxiety scores were not significantly correlated with coping style scores.

Emotion-focused and problem-focused coping style scores were negatively correlated with neuroticism scores in the present study. Individuals with high neuroticism experience more stressful events, and generally use passive and maladaptive coping styles.²⁸ The findings of several previous studies suggest that people with high neuroticism scores are less likely to engage in problem-focused coping, and are more likely to rely on emotion-focused forms of coping.^{29,30}

The negative correlation of emotion-focused coping style with neuroticism scores may be associated with different factors. It has been proposed that there are some moderators for personality and coping styles.³¹ For example, relationship between personality and coping styles were stronger in younger individuals compared to older ones.³² Relationship between personality and coping styles were also generally stronger in samples which encountered a higher degree of stress.¹⁴ Another potentially important moderator was the time lag between the utilized coping strategy and the reported coping style. Retrospective coping reports were weakly related to daily reports, with longer recall periods and higher stress levels promoting greater discrepancies.³³ Our patient sample was mostly composed of middle-aged women, and HT is not considered to be a life-threatening stressor. Additionally, we did not measure these traits and coping styles at the time of the initial diagnosis. Last, the negative correlation of emotion-focused coping style with neuroticism may be associated with cross-cultural differences.

Emotion-focused and problem-focused coping style scores were positively correlated with openness scores. While there are studies demonstrating no association between openness and emotion-focused coping styles,³⁴ in line with the present study, some others have found a positive association.^{30,35} Openness was also correlated with problem-focused coping styles in previous studies.^{30,36} Emotion-focused coping style scores were also positively correlated with agreeableness scores. It has been shown that agreeableness had a positive correlation with emotion-focused coping strategies.³⁷ Dysfunctional coping style were negatively correlated with conscientiousness scores. Individuals high in conscientiousness might perceive themselves

as able to meet situational demands. They are generally self-disciplined, and behave in a goal-oriented manner. This finding is also consistent with the previous literature.^{37,38}

Linear regression analysis demonstrated that emotion-focused coping style scores were predicted by higher agreeableness and anxiety scores as well as lower neuroticism scores. Problem-focused coping style scores were predicted by lower depression scores, and dysfunctional coping style scores were only predicted by lower conscientiousness scores.

The results of the present study must be interpreted within the limitations of the study. We included a regionally restricted patient group. Hence, the comparability with the results of epidemiological studies is limited. The small sample size of the study, and the female preponderance are two further important limitations of the study. It is known that coping strategies differ between sexes. Yet, since HT is about seven times more common in women than in men, this is a common limitation of such studies. Moreover, we did not have a structured diagnostic clinical interview, and the patients were evaluated with the HADS. The HADS is not a tool to diagnose mood or anxiety disorders, but it has proven to be a reliable, valid and responsive instrument to assess the severity of symptoms of mood disorders or anxiety disorders in patients with medical disorders. The cross-sectional design of the study is another limitation. It would definitely be better to evaluate the patients at their first diagnosis, and at different stages of the disorder and evaluate the patients after treatment of thyroid dysfunction. Further, we did not control for medications or other treatments for depression or anxiety, which may or may not confound the results. We also failed to question for how long the patients had been in euthyroid state, which may have affected our results.

Conclusion

Despite its limitations, the present study is the first study in terms of evaluating the personality traits and coping strategies of patients with HT. The present study points the importance of taking personality features and individual coping strategies into account when evaluating patients with HT. Determining the personality features and coping strategies might be useful for identifying patients in need of particular counseling and support.

Conflict of interest

The authors do not have an affiliation with or financial interest in any organization that might pose a conflict of interest that are directly relevant to the contents of the paper.

References

1. Caturegli P, De Remigis A, Rose NR. Hashimoto thyroiditis: clinical and diagnostic criteria. *Autoimmun Rev*. 2014;13:391–7.
2. Repplinger D, Bargren A, Zhang YW, Adler JT, Haymart M, Chen H. Is Hashimoto's thyroiditis a risk factor for papillary thyroid cancer? *J Surg Res*. 2008;150:49–52.
3. Mizokami T, Wu Li A, El-Kaissi S, Wall JR. Stress and thyroid autoimmunity. *Thyroid*. 2004;14:1047–55.

4. Ayhan MG, Uguz F, Askin R, Gonen MS. The prevalence of depression and anxiety disorders in patients with euthyroid Hashimoto's thyroiditis: a comparative study. *Gen Hosp Psychiatry*. 2014;36:95–8.
5. Carta GM, Loviselli A, Hardoy CM, Massa S, Cadeddu M, Sardul C, et al. The link between thyroid autoimmunity (antithyroid peroxidase autoantibodies) with anxiety and mood disorders in the community: a field of interest for public health in the future. *BMC Psychiatry*. 2004;4:1.
6. Carta MG, Hardoy MC, Carpiniello B, Murru A, Marci AR, Carbone F, et al. A case control study on psychiatric disorders in Hashimoto disease and Euthyroid Goitre: not only depressive but also anxiety disorders are associated with thyroid autoimmunity. *Clin Pract Epidemiol Ment Health*. 2005;1:23.
7. Engum A, Bjørø T, Mykletun A, Dahl AA. Thyroid autoimmunity, depression and anxiety; are there any connections? An epidemiological study of a large population. *J Psychosom Res*. 2005;59:263–8.
8. Kent GN, Stuckey BG, Allen JR, Lambert T, Gee V. Postpartum thyroid dysfunction: clinical assessment and relationship to psychiatric affective morbidity. *Clin Endocrinol*. 1999;51:429–38.
9. Ott J, Promberger R, Kober F, Neuhold N, Tea M, Huber JC, et al. Hashimoto's thyroiditis affects symptom load and quality of life unrelated to hypothyroidism: a prospective case-control study in women undergoing thyroidectomy for benign goiter. *Thyroid*. 2011;21:161–7.
10. Luyckx K, Klimstra TA, Duriez B, Schwartz SJ, Vanhalst J. Identity processes and coping strategies in college students: short-term longitudinal dynamics and the role of personality. *J Youth Adolesc*. 2012;41:1226–39.
11. Wong PT, Reker GT, Peacock EJ. A resource-congruence model of coping and the development of the coping schemas inventory. In: *Handbook of multicultural perspectives on stress and coping*. US: Springer; 2006. p. 223–83.
12. McInnis OA, Matheson K, Anisman H. Living with the unexplained: coping, distress, and depression among women with chronic fatigue syndrome and/or fibromyalgia compared to an autoimmune disorder. *Anxiety Stress Coping*. 2014;27:601–18.
13. Stojanovich L. Stress and autoimmunity. *Autoimmun Rev*. 2010;9:A271–6.
14. Connor-Smith JK, Flachsbarth C. Relations between personality and coping: a meta-analysis. *J Pers Soc Psychol*. 2007;93:1080.
15. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand*. 1983;67:361–70.
16. John OP, Srivastava S. The Big-Five trait taxonomy: history, measurement, and theoretical perspectives. In: Pervin LA, John OP, editors. *Handbook of personality: theory and research*, vol. 2. New York: Guilford Press; 1999. p. 102–38.
17. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. *J Pers Soc Psychol*. 1989;56:267–83.
18. Aydemir O, Guvenir T, Kuey L. Reliability and validity of the Turkish version of the Hospital Anxiety and Depression Scale. *Turk Psikiyatri Derg*. 1997;8:280–7 [Turkish].
19. Agargun MY, Besiroglu L, Kiran UK, Ozer OA, Kara H. The psychometric properties of the COPE Inventory in Turkish sample: a preliminary research. *Anadolu Psikiyatri Derg*. 2005;6:221–6.
20. Aslan S, Ersoy R, Kuruoglu AC, Karakoc A, Cakir N. Psychiatric symptoms and diagnoses in thyroid disorders: a cross-sectional study. *Int J Psychiatry Clin Pract*. 2005;9:187–92.
21. Kirim S, Keskek SÖ, Köksal F, Haydardedeoglu FE, Bozkirli E, Toledano Y. Depression in patients with euthyroid chronic autoimmune thyroiditis. *Endocr J*. 2012;59:705–8.
22. Lin IC, Chen HH, Yeh SY, Lin CL, Kao CH. Risk of depression, chronic morbidities, and l-thyroxine treatment in Hashimoto thyroiditis in Taiwan: a nationwide cohort study. *Medicine (Baltimore)*. 2016;95.
23. Schmitt DP, Realo A, Voracek M, Allik J. Why can't a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *J Pers Soc Psychol*. 2008;94:168.
24. Donnellan MB, Lucas RE. Age differences in the Big Five across the life span: evidence from two national samples. *Psychol Aging*. 2008;23:558.
25. Cohan SL, Jang KL, Stein MB. Confirmatory factor analysis of a short form of the Coping Inventory for Stressful Situations. *J Clin Psychol*. 2006;62:273–83.
26. Kelly MM, Tyrka AR, Price LH, Carpenter LL. Sex differences in the use of coping strategies: predictors of anxiety and depressive symptoms. *Depress Anxiety*. 2008;25:839–46.
27. Matheson K, Anisman H. Systems of coping associated with dysphoria, anxiety and depressive illness: a multivariate profile perspective. *Stress*. 2003:223–34.
28. Vollrath M, Torgersen S. Personality types and coping. *Pers Individ Dif*. 2000;29:367.
29. Endler NS, Parker JDA. Multidimensional assessment of coping: a critical evaluation. *J Pers Soc Psychol*. 2009;58:844–54.
30. Peneley JA, Tomaka J. Associations among the big Five, emotional responses, and coping with acute stress. *Pers Individ Dif*. 2002;32:1215–28.
31. Carver CS, Connor-Smith J. Personality and coping. *Annu Rev Psychol*. 2010;61:679–704.
32. Skinner EA, Zimmer-Gembeck MJ. The development of coping. *Annu Rev Psychol*. 2007;58:119–44.
33. Ptacek JT, Smith RE, Rafferty BD, Lindgren KP. Coherence and transsituational generality in coping: the unity and the diversity. *Anxiety Stress Coping*. 2008;21:155–72.
34. Hooker K, Frazier LD, Monahan DJ. Personality and coping among caregivers of spouses with dementia. *Gerontologist*. 1994;34:386–92.
35. McCrae RR, Costa PT Jr. Personality, coping, and coping effectiveness in an adult sample. *J Personal*. 1986;54:385–405.
36. Karimzade A, Besharat MA. An investigation of the relationship between personality dimensions and stress coping styles. *Proc Soc Behav Sci*. 2011;30:797–802.
37. O'Brien TB, De Longis A. The interactional context of problem-, emotion- and relationship-focused coping: the role of the Big Five personality factors. *J Personal*. 1996;64:775–813.
38. McCrae RR, John OP. An introduction to the five-factor model and its applications. Special Issue: the five-factor model: issues and applications. *J Personal*. 1992;60:175–215.