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The Impact of Spouse's Illness Beliefs and Psychological Well-Being on Woman with Rheumatoid Arthritis: with the Evidence of Reliability and Validity Analyses

Eşin Hastalık İnancı ve Psikolojik İyi Oluşunun Romatoid Artritli Kadın Üzerindeki Etkisi: Güvenilirlik ve Geçerlilik Analizi Kanıtı ile

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This study was presented as an abstract at Annual European Congress of Rheumatology (EULAR) 2018, June 13-16, Amsterdam, Holland [Do spouses' illness perceptions affect the women with rheumatoid arthritis? Ann Rheum Dis 2018;77 (Suppl. 2): A1322].

ABSTRACT Objective: The aims were to evaluate the validity-reliability of the Turkish spouse-version of the Illness Perception Questionnaire-Revised (IPQ-R); to examine the role of spouses' illness perceptions and psychological well-being in the illness severity and depression of women with rheumatoid arthritis (RA). **Material and Methods:** One-hundred and one married women diagnosed with RA and their husbands were enrolled. Spouses' beliefs about RA were assessed by Turkish spouse-version of the IPQ-R. The data were collected using Visual Analogue Scale-Pain, DAS-28, and the Health Assessment Questionnaire-Disability Index in patients; global life satisfaction by the Satisfaction with Life-Scale in husbands; Beck Depression Inventory in all participants. **Results:** The scale demonstrated satisfactory convergent validity, discriminate validity and reliability. Patients' disability, depression, pain scores were correlated with IPQ-R-subscales positively (p<0.05). Patients'disability, pain, disease activity, depression levels were correlated with spouses' depression scores positively and with spouses'life satisfaction scores negatively (p<0.05). In multiple regression analysis; consequences, emotional and timeline cyclical-subscales were found to be influential variable on disability (p<0.05). Emotional representations-subscale, spouses'depression and life satisfaction scores were found to be influential variable on patients' depression (p<0.05). **Conclusion:** Turkish version of spouse version of the IPQ-R could be a valuable instrument in the assessment of illness perceptions in Turkish husbands of women with RA. Spouses' pessimistic beliefs about RA and their poor psychological well-being were significantly related to disability, pain severity and depression level of women with RA. Husbands' illness perceptions about disease and psychological status should be taken into account in the treatment of women with RA.

Keywords: Rheumatoid arthritis; depression; illness perception; life satisfaction; spouse

ÖZET Amaç: Revize Hastalık Algı Ölçeğinin eş-versiyonu (RHAÖ-eş)' nun Türkçe geçerlik ve güvenirliliğini değerlendirmek; eşlerin hastalık algılarının ve psikolojik iyilik halinin, romatoid artrit (RA)'li kadınların hastalık aktivitesi ve depresyondaki rolünün incelenmesi amaçlanmıştır. **Gereç ve Yöntemler:** Yüz bir RA tanısı konmuş evli kadın ve eşleri dahil edildi. Eşlerin RA ile ilgili inançları, Türkçe RHAÖ-eş ile değerlendirildi. Veriler hastalarda Görsel Analog Ağrı Skalası, Sağlık Değerlendirme Anketi- Engellilik İndeksi ile, eşlerde Yaşam Doyumu Ölçeği ile ve tüm katılımcılarda Beck Depresyon Ölçeği ile toplandı. **Bulgular:** Ölçek tatmin edici benzer ölçek geçerliği ve güvenilirlik göstermiştir. Hastaların özürlülük, depresyon ve ağrı skorları RHAÖ-eş alt ölçekleri ile pozitif olarak korele idi (p<0,05). Hastaların özürlülük, ağrı, hastalık aktivitesi ve depresyon seviyeleri eşlerin depresyon skorlarıyla pozitif, eşlerin yaşam doyum ölçüm skorlarıyla negatif yönde korele idi (p<0,05). Çoklu regresyon analizinde; sonuçlar, duygusal temsiller ve süre (döngüsel) alt ölçeklerinin özürlülük üzerinde etkili bir değişken olduğu bulundu (p <0,05). Duygusal temsiller alt ölçeği, eşlerin depresyon ve yaşam doyumu skorlarının hastaların depresyonu üzerinde etkili bir değişken olduğu bulundu (p<0,05). **Sonuç:** Türkçe RHAÖ-eş versiyonu, RA'lı kadınların Türk eşlerinin hastalık algılarının değerlendirilmesinde değerli bir araç olabilir. Eşlerin RA ile ilgili karamsar inanışlarının ve kötü psikolojik durumlarının RA'lı kadınların özürlülük, ağrı şiddeti ve depresyon düzeyi ile anlamlı şekilde ilişkili olduğunu göstermektedir. Eşlerin hastalık algıları ve psikolojik durumları RA'lı kadınların tedavisinde dikkate alınmalıdır.

Anahtar Kelimeler: Romatoid artrit; depresyon; hastalık algısı; yaşam doyumu; eş

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Rheumatoid arthritis (RA) is one of the most prevalent chronic inflammatory diseases and affects all aspects of the patient's life including the physical, behavioral, and psychosocial.[1,2] The debilitating nature of this disorder may interfere with RA patients' family, especially their partners' lives. The chronic nature and the unpredictable course of the illness may cause psychosocial disruption for patients with RA, and they may become more reliant for support.[3] Spouses are often significant source of support, and they have to face psychological and social changes together with their partners.[4] These difficulties can be stressful for the partner and cause alterations in their psychological well-being.[2] Spouse depressive symptoms play a key role in the disease course of patients with RA, and in the presence of depressed spouse, interventions that target only RA patients' symptoms may not be sufficient.[2]

Illness perceptions are the cognitive and emotional representations that patients have regarding their disease.[5] Spouses also develop their personal representations of partners' illness.[6] Spouses' view of the situation from their partner's perspective is important to identify their partner's needs and shared illness perceptions in spouses may affect patients' adaptation to illness.[7,8] There have been few studies evaluating the illness perceptions of spouses in different diseases.[4,6,9-11] The results of these studies demonstrated the impact of spouses' illness beliefs on patient's coping and adaptation with chronic illness, and recovery outcomes.[4,6,9-11]

Although previous researches emphasize that the spouse's well-being and beliefs about RA are related to psychological and physical health in women with RA, little research exists on the effect of the spouses on patients with RA.[2,8,10,12] Sterba et al. reported that understanding of one's spouse's illness was critical for partners of women with RA and congruent perceptions might affect the adaptation of patient to RA.[10] After this study, Sterba and DeVellis have developed a spouse version of seven subscales of the Revised Illness Perception Questionnaire (IPQ-R) designed to assess husband's beliefs about their wives' RA.[8] This questionnaire has not yet been adapted for use in Turkey, therefore the first aim of this study was to develop a Turkish version of the spouse-version of the IPQ-R and to assess its reliability and validity in Turkish spouses of women with RA. Secondly, it was aimed to explore the role of illness perceptions about RA, depression, and life satisfaction of the spouses in the disability, pain, disease activity, and depression of women with RA.

MATERIAL AND METHODS

The study was conducted at the Department of Physical Medicine and Rehabilitation of Medical Faculty of Ondokuz Mayıs University". One hundred and one married women diagnosed with RA for at least one year, as well as their partners were enrolled in the study between March 2015 and March 2017.[13] Inclusion criteria for all participants were age over 18, being able to understand the study protocol and provide informed consent. Patients consenting to have their spouses are involved in the study and spouses being were free of any chronic or severe illnesses were included. Subjects were excluded if they had severe somatic or psychiatric disorders, had cognitive dysfunctions or were not fluent Turkish speakers. Patients with other rheumatic diseases were not included in the study. None of the participants was receiving psychiatric treatment including psychotherapy or use of antidepressants etc. The local ethics committee approved the study protocol (B.30.2.ODM.0.20.08/ 1410). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Patients, as well as those of the partners were approached by a physician (YU) who provided information about the purpose of the study and invited them to participate. The patients and their partners agreed to participate, were asked to respond to the study questionnaires separately. All participants were questioned about age, working status, number of years married, educational level, and number of years of education. Disease duration of the patients was also reported. The global pain of the patients was assessed by a 10 cm visual analogue scale (VAS); the score 0 indicates no pain and 10 indicates very severe pain.[14] Disease activity of the patients was evaluated using Disease Activity Score including 28 joints (DAS-28).[15] Tender joint count, swollen joint count, erythrocyte sedimentation rate,

and global assessment score were used. Turkish version of the Health Assessment Questionnaire Disability Index (HAQ-DI) was used to measure functional disability of the patients.[16] Scores range from 0-3, where zero is no functional disability and 3 is extreme disability.[17] Turkish version of the Satisfaction with Life Scale (SWLS) was used to measure global cognitive judgments of satisfaction with spouse's life.[18] The higher scores indicate greater life satisfaction.[19] In all participants, depression was assessed using Turkish Beck Depression Inventory (BDI).[20] The BDI consists of twenty-one questions about how the subject has been feeling in the last week and gathers information on different symptoms of depression. Higher scores imply the presence of more depression.[20,21]

Spouses' perceptions about RA were evaluated using a spouse version of the IPQ-R.[8] It comprises six subscales: timeline acute/chronic (higher scores reflect partner beliefs that RA is permanent rather than temporary), control (combination of three personal control items and three treatment control items) (higher scores reflect stronger partner beliefs about women's control over RA), illness coherence (higher scores reflect stronger partner beliefs about the extent to which women have a clear understanding of RA), consequences (higher scores reflect stronger partner beliefs concerning the consequences of RA on women's life), emotions (higher scores reflect partner beliefs that women have stronger emotional reactions associated with RA), timeline cyclical (higher scores reflect stronger partner beliefs about the unpredictability of RA). Each item asks respondents to indicate the extent to which they agreed or disagreed with a statement on a six point scale (1: strongly disagree, 2: moderately disagree, 3: slightly disagree, 4: slightly agree, 5: moderately agree, 6: strongly agree). Higher scores for the control and illness coherence subscales reflect positive beliefs of spouses regarding RA.

After the authors' permission, this instrument was translated into Turkish by three Turkish medical doctors who were proficient in English. Discrepancies in initial translations were addressed with the assistance of a fourth independent translator. The Turkish version of the husband version of the IPQ-R was then translated back into English by two English-speaking language specialists who were blinded to the original scale and the objective of the study. The differences between translated versions were evaluated, and a satisfactory compliance with the original scale was achieved by consensus of the translators. Firstly ten husbands of women with RA filled the questionnaire and then they were asked whether they could understand all items of the questionnaire. None of the subjects in this initial group reported a problem with any item of the translated instrument.

STATISTICAL ANALYSIS

The data were analyzed using the IBM SPSS version 22.0 for Windows. The sample size was calculated by a statistician with PASS 2011 software. A priori power analysis using data from a previous study that a sample of 100 patients and 100 spouses would have 0.99 power and $p<0.05$ based on Cronbach's alfa value. Descriptive statistics were used to characterize the sample.[8] The Kolmogorov-Smirnov test was used to analyze normal distribution assumption of the quantitative outcomes and all data were not normally distributed. Descriptive data were presented as minimum-maximum (median).The Cronbach's alpha (Cronbach's α) coefficient which provides us with internal consistency of the scale tested where values over 0.80 are accepted as a higher index of consistency, was calculated for spouse version of IPQ-R. Internal reliability of the instrument was evaluated by composite reliability estimates (ρ) with values ≥0.60 indicating satisfactory reliability in the latent factors.[22] Discriminate validity of the six factors was assessed by the size of their intercorrelations with correlation coefficients <0.85 indicating acceptable discriminate validity. Convergent validity was assessed by looking at the magnitude and direction of the correlation of Turkish spouse version of the IPQ-R scores to SLWS and BDI scores in husbands. Correlations were evaluated by Spearman's rank correlation analysis. Multiple regression analysis was performed to analyze the relationship between patients' HAQ-DI, VAS, DAS 28, BDI scores and spouses' illness perceptions subscales, BDI, and SLWS scores.

RESULTS

The sample consisted of 101 women aged between 22 and 75 years and their husbands aged between 24 and 77 years. Couples had been married for 38 (1-59) years. Of the patients, 74 (73.3%) were on biologic therapy. Demographic and clinical characteristics of the participants are shown in Table 1.

Internal consistency (Chronbach's α) of Turkish spouse version of the IPQ-R was calculated as 0.99. In terms of discriminate validity; intercorrelations between the six latent factors of Turkish spouse version of the IPQ-R are presented in Table 2. No intercorrelation exceeded the threshold of 0.70, suggesting acceptable discriminate validity. The largest correlation was found between the consequences and emotional representation factors (r=0.547). In terms of convergent validity; timeline acute/chronic, consequences, emotions, and timeline cyclical subscales were positively correlated with spouses' BDI ($p<0.01$). Illness coherence and consequences subscales were also correlated with SLWS positively ($p<0.01$) (Table 3).

In correlation analyses between subscales of spouse version of the IPQ-R and clinical parameters are presented in Table 3. Positive correlations were found between timeline acute/chronic subscale, and BDI of patients (p=0.047) and disease duration (p=0.001). Illness coherence subscale was correlated with HAQ-DI (p=0.016), VAS pain (p=0.011), and

TABLE 1: Demographic and clinical characteristics of women with rheumatoid arthritis and their spouses.

	Women with rheumatoid arthritis (n= 101)		Spouses (n= 101)	
Characteristics	**n**	**%**	**n**	**%**
Occupation				
Housewife	90	89.1	-	-
Office worker	6	5.9	12	11.9
Retired	5	5.0	56	55.4
Other	-	-	33	32.7
Education				
Literate	23	22.8	5	5
Primary education	68	67.3	71	70.3
Secondary education	8	7.9	15	14.9
College	2	2.0	10	9.9
	Median (minimum-maximum)		**Median (minimum-maximum)**	
Age	57 (22-75)		60 (24-77)	
Years of education	5 (0-14)		5 (0-15)	
Years of marriage	38 (1-59)			
BDI score	7 (0-35)		3 (0-22)	
SLWS score	-		26 (12-35)	
Disease duration(years)	8 (1-40)		-	
VAS pain score (0-10)	5 (0-10)		-	
DAS 28	3.56 (0.77-6.02)		-	
HAQ-DI score	0.36 (0-2.38)		-	
Spouse IPQ-R				
Timeline acute/chronic	-		25 (5-30)	
Control	-		28 (17-36)	
Illness coherence	-		25 (5-30)	
Consequences	-		15 (4-24)	
Emotions	-		16 (4-24)	
Timeline cyclical	-		17 (4-24)	

BDI: Beck depression inventory; SWLS: Satisfaction with life scale; VAS: Visual analogue scale; DAS-28: Disease activity score-28; HAQ-DI: Health assessment questionnaire disability index; Spouse IPQ-R: spouse version of the Revised Illness Perception Questionnaire.

TABLE 2: Intercorrelations between the six latent factors of the Turkish spouse version of the Revised Illness Perception Questionnaire latent factors.

Factors	F1	F2	F3	F4	F5	F6
Timeline acute/chronic						
Control	0.154					
Illness coherence	0.211*	0.336**				
Consequences	0.411**	0.218	-0.216*			
Emotions	0.261*	0.148	-0.182	0.547**		
Timeline cyclical	0.324*	0.020	-0.267*	0.426**	0.403*	

*p<0.05; **p<0.01.

BDI of the patients (p=0.014) negatively. There were positive correlations between consequences subscale and patients' BDI, HAQ-DI, and VAS pain (p<0.001). Positive correlations were detected between emotional subscale and patients' BDI, HAQ-DI (p<0.001), and VAS pain (p=0.021). Timeline cyclical subscale was correlated positively with patients' BDI (p=0.001), and HAQ-DI (p<0.001) DAS 28 was not correlated with spouse version of the IPQ-R domains (p>0.05) (Table 3). Spouses' BDI scores were positively correlated with HAQ-DI, patients' BDI (p<0.01), VAS pain, and DAS 28 (p<0.05). There were negative correlations between spouses' SLWS scores and HAQ-DI, VAS pain, DAS 28 and patients' BDI (p<0.05) (Table 3). The number of years married was not related to any parameter (p>0.05).

According to the multiple regression analyses; it was found that the most significant correlation with HAQ-DI was consequences subscale (p<0.001). HAQ-DI was also associated with timeline acute/chronic subscale and emotional subscale (p<0.05). The correlations were found between VAS pain and consequences subscale (p<0.05). Patients' BDI was associated with emotional subscale, spouses' BDI and SLWS (p<0.05) (Table 4).

DISCUSSION

The woman with RA and spouse share daily life experiences, thoughts, and feelings; and RA patient married with a partner recognizing her disease, has better psychological and physical health.[7] In the current study, we evaluated the reliability and validity of the Turkish version of the spouse-version of the IPQ-R. After development of Turkish version of this scale, we examined the role of spouses' psychological well-being and illness perceptions about RA on the illness severity and depression of women with RA.

The Turkish version of the spouse-version of the IPQ-R demonstrated satisfactory convergent validity,

TABLE 3: Correlation coefficients between the Turkish spouse version of the Revised Illness Perception Questionnaire and clinical variables.

	Spouses' BDI	Spouses' SLWS	HAQ-DI	VAS pain	DAS 28	Patients' BDI	Disease duration
Spouse IPQ-R							
Timeline Acute/chronic	0.230*	0.032	0.186	0.009	-0.029	0.198*	0.340*
Control	-0.084	0.178	-0.090	-0.048	0.007	-0.112	-0.137
Illness coherence	-0182	0.328*	-0.239*	-0.251*	-0.178	-0.240*	-0.066
Consequences	0.432**	-0.239*	0.548**	0.380**	0.160	0.455**	0.224*
Emotions	0.350**	-0.150	0.427**	0.230*	0.108	0.491**	0.029
Timeline cyclical	0.231*	-0.120	0.377**	0.153	0.065	0.331*	0.105
Spouses' BDI	-	-0.324*	0.475**	0.282*	0.281*	0.580**	0.144
Spouses' SLWS		-	-0.254*	-0.200*	-0.260*	-0.299*	-0.024
HAQ-DI			-	0.494**	0.395**	0.625**	0.225*
VAS pain				-	0.486**	0.404**	-0.002
DAS 28					-	0.356**	-0.025
Patients' BDI						-	-0.188
Disease duration							-

Spouse IPQ-R: Spouse version of the Revised Illness Perception Questionnaire; BDI: Beck depression inventory; SWLS: Satisfaction with life scale; HAQ-DI: Health assessment questionnaire disability index; VAS: Visual analogue scale; DAS-28: Disease activity score-28.
*p<0.05, **p<0.01.

TABLE 4: Multiple regression analysis with patients' clinical variables as dependent and spouses' illness perception subscales, BDI and SWLS scores.

Independent variables \ Dependent variables	HAQ-DI		VAS pain		DAS28		Patients' BDI	
	β	p	β	p	β	p	β	p
Timeline acute/chronic	-0.016	0.049*	-0.033	0.453	-0.008	0.687	0.113	0.250
Control	-0.012	0.226	-0.045	0.413	0.004	0.857	-0.076	0.530
Illness coherence	0.001	0.939	0.020	0.711	-0.011	0.640	-0.137	0.245
Consequences	0.044	0.000*	0.192	0.002*	0.023	0.398	0.094	0.482
Emotions	0.022	0.037*	0.012	0.824	-0.003	0.898	0.338	0.006*
Timeline cyclical	0.012	0.371	-0.036	0.612	-0.013	0.680	0.008	0.960
Disease duration	0.006	0.298	-0.054	0.087	-0.012	0.390	-0.001	0.993
Spouses' BDI	0.011	0.332	0.084	0.154	0.040	0.126	0.460	0.001*
Spouses' SLWS	-0.006	0.600	-0.075	0.203	-0.047	0.073	-0.311	0.019*
R Square	0.471		0.261		0.133		0.497	
Adjusted R Square	0.411		0.179		0.036		0.441	
Std. Error of the Estimate	0.441		2.375		1.055		5.224	
Durbin-Watson	1.882		1.574		1.912		1.957	
Anova	0.000*		0.002*		0.205		0.000*	

BDI: Beck depression inventory; SWLS: Satisfaction with life scale; HAQ-DI: Health assessment questionnaire disability index; VAS: Visual analogue scale; DAS-28: Disease activity score-28.

discriminant validity and reliability. The analysis of internal validity of the questionnaire revealed that the scale items presented adequate internal consistency (α=0.99). This is comparable to the results of the original scale.[8] The results of the intercorrelations between the factors of our translated questionnaire reveal moderate or weak relationships between the subscales. The strongest effects were found between the emotional representation, and consequences and timeline cyclical subscales in line with the original scale.[8] These results indicated that spouses, who had stronger beliefs concerning the consequences of RA on women's lives and the unpredictability of RA, believed that their wives had stronger emotional reactions associated with RA. On the other hand, spouses who believed that RA had serious consequences on their wives' lives, perceived RA as a long term and an unpredictable condition. In this study, the correlation between the subscales of the Turkish version of the spouse-version of the IPQ-R and depression and life satisfaction scores revealed satisfactory convergent validity.

Even if disability rates decline with recent aggressive treatment regimens, patients continue to experience disability because of RA.[1,23] In the literature, just Sterba and DeVellis have investigated the relation of disability with spouses' illness perceptions in RA.[8] They have found that disability was associated with control beliefs inversely and with consequences beliefs positively. In the current study, disability of the patients was related to stronger partner beliefs about the consequences of RA on women's life and the unpredictability of RA. Spouses' beliefs about the wives' emotional reactions to RA were also influential variable on disability level of patients. The relationship between illness coherence and HAQ-DI was weak and illness coherence was not found to be influential variable on HAQ-DI. It seems that spouses of patients with higher disability think that RA has serious consequences, their wives are emotionally affected by the disease, and RA is unpredictable. In other words, having pessimistic illness perceptions in spouses may be related to higher disability in their wives with RA.

We are not aware of any investigations of the relationship of spouses' illness perceptions with pain severity and disease activity in women with RA. The results of the current study revealed that positive correlations between pain and consequences and emo-

tional subscales, and negative correlation between pain and illness coherence subscale. In multiple regression analysis, the significant correlation with pain was consequences subscale. It means that, spouses of patients with more pain thought that RA had negative consequences on their wives' life. Spouses of patients with higher disease activity would be expected to have more negative illness perceptions because their wives' illness was more active and severe. But no correlation was detected between husband version of the IPQ-R domains and DAS-28 of the patients. It can be suggested that spouses' beliefs about their wives' RA cannot be explained by disease activity. Or conversely, the spouses' beliefs about RA may not play a role in disease activity of the women with RA.

The association between the spouses' illness perceptions and psychological status of patients has been investigated in limited number of studies.[6,8,10,11] Dimitraki and Karademas found positive correlation between spouses' beliefs about consequences and depression level of patients with type II diabetes mellitus.[6] Figueiras and Weinman reported that in couples who had similar positive perceptions of the consequences of myocardial infarction, patients had better psychological functioning.[11] In a study by Sterba and DeVellis, it was concluded that husbands' optimistic illness perceptions were associated with better psychological adjustment in women with RA.[8] In our study; spouses' beliefs about consequences, emotions and timeline cyclical were positively correlated with depression scores of patients. Furthermore, husbands' beliefs about the wives' emotional reactions to RA were significantly associated with patients' depression level in multiple regression analysis. The association between husbands' illness perceptions and depression level of their wives with RA may be mutual. Husbands may view their partners' illness more negatively because of patients' poor psychological status, or negative beliefs of the husbands may cause their wives to become depressed. But it was clear that if spouses thought that their wives have stronger emotional reactions associated with RA, patients might have more depressive symptoms.

The previous studies found that the spouses of patients with RA carried significant psychosocial burden and they were at increased risk for psychological distress including depression.[2,3,7,12] It was demonstrated that higher level of spouse depression predicted worse disease course.[7,12] In the current study, correlations were found between spouses' depression and life satisfaction and patients' disability, pain, disease activity, and depression. These correlations are in the expected direction and may be reciprocal. Spouses' poor psychological status may lead to poor disease course. On the other hand, increased disability, pain, disease activity, and depression in women with RA may cause negative spouse mood. The most significant correlation was between depression levels of spouses and their wives with RA. In multiple regression analysis, depression and life satisfaction of spouses were significantly correlated with patients' depression level. When spouses are depressed and less satisfied with life, they may be less likely to support their wives with RA and may cause patients to become more depressed. The association was also shown between depression level and satisfaction with life, and illness perceptions in husbands whose wives had RA. Spouses' poor psychological status may lead to negative perceptions about RA or negative beliefs of spouses may cause them to have negative mood.

Powerful aspect of our study is that it is the first study to evaluate husbands' beliefs about RA with validated instrument developed by Sterba and DeVellis.[8] Turkish version of spouse version of the IPQ-R showed good reliability and validity. The findings of the current study suggest that spouses' pessimistic beliefs about RA were significantly related to disability, pain severity and depression level of women with RA. Additionally spouses' poor well-being was associated with higher disability, pain, disease activity, and depression levels of their wives. Spouses' depression and life satisfaction were found to be influential variable on depression level of their wives with RA.

This study is faced with certain limitations that should be considered. Firstly; because the study was cross-sectional in design, direction or causality of the correlations could not be inferred. Secondarily, it should be noted that RA patients in this study had a median HAQ-DI score of 0.36 indicating mild to moderate difficulty.[17] This may be due to the fact that most of the patients (73.3%) were on biologic agents.

This is an ineluctable result due to the increasing use of biologic therapy recently which will be clarified by the studies to be performed in biologic agent naive patients.[23] And thirdly, since the results belong to single centre, they could not be generalized to broader population.

CONCLUSION

Turkish version of spouse version of the IPQ-R could be a valuable instrument in the assessment of illness perceptions in Turkish husbands of women with RA. The current study highlights the importance of spouses' illness perceptions and psychological well-being in disease course of women with RA. It was found that in general having more pessimistic illness perceptions in spouses may contribute to the poor physical and psychological well-being of their wives with RA. Husbands' better understanding of RA and having more optimistic beliefs about RA may result in improved health status in these patients. On the other hand, husbands' psychological well-being may be critical important to consider in the disease course of married RA patients. Furthermore, the fact that spouses' depression level and life satisfaction were related to their negative beliefs about RA may indicate that psychological well-being of spouses should be considered in monitoring of RA patients. In line with previous studies, the results of the current study demonstrate that interventions for RA should include husbands as well as married woman with RA. Husbands' psychological status and illness beliefs about RA should be considered in women with RA who report high levels of pain, disability, and depression despite effective treatment. Routine assessment of husbands' mood and beliefs about RA would be useful in guiding patient management.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

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