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THE BRIEF RESIDENT WELLNESS PROFILE: VALIDITY AND RELIABILITY OF TURKISH VERSION

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ABSTRACT

Objective: *We aimed to construct a valid and reliable Turkish version of the Brief Resident Wellness Profile (BRWP), which was developed by Keim et al. in 2006 to evaluate resident physicians' wellness regularly and easily in their busy working environment.*

Material and Method: *After cross-cultural adaptation process, BRWP was administered to 60 resident physicians and repeated after three weeks. Professional Quality of Life Scale (ProQOL) was also administered concurrently with BRWP. Cronbach's alpha coefficient and test-retest reliability was measured for evaluating the reliability of the Turkish version of BRWP.*

Results: *BRWP's six five-Likert items' Cronbach's alpha coefficient was 0.783, and when each item was deleted, Cronbach's alpha coefficients varied between 0.727 and 0.780. These six items' scores were moderately correlated with BRWP's seven-scale mood faces item (r=0.616, p<0.001) and ProQOL's compassion satisfaction scale scores (r=0.744, p<0.001). BRWP's test and retest scores showed a strong correlation (r=0.915, p<0.001) and there was no significant difference between them (t=- 1.183; p=0.241).*

Conclusion: *Turkish version of BRWP is valid and reliable for measuring resident wellness.*

Keywords: *Residency, job satisfaction, burnout, mood, validity, reliabilit*

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KISA ASİSTAN İYİLİK HALİ PROFİLİ: TÜRKÇE GEÇERLİK VE GÜVENİRLİK ÇALIŞMASI

ÖZET

Amaç: Bu çalışmada, yoğun iş koşulları içinde asistan hekimlerin iyilik hallerini hızlıca ve kolayca değerlendirebilmek amacıyla Samuel M. Keim *ve ark.* tarafından 2006 yılında geliştirilen "Brief Resident Wellness Profile" (Kısa Asistan İyilik Hali Profili; KAİHP) adlı ölçeğin Türkçe geçerlik güvenirlik çalışmasının yapılması hedeflenmiştir.

Materyal ve Metot: Ölçek Türkçe'ye uyarlandıktan sonra 60 asistan hekime anket uygulanmış, 3 hafta sonra tekrarlanmıştır. KAİHP ile birlikte Çalışanlar İçin Yaşam Kalitesi Ölçeği (ÇİYKÖ, Professional Quality of Life Scale; ProQOL) de uygulanmıştır. Güvenirliğin değerlendirilmesi için Cronbach's alfa katsayısı hesaplanmış ve test-retest güvenirlik analizleri yapılmıştır.

Bulgular: KAİHP'nin 5'li likert tipindeki 6 sorusunun Cronbach's alfa değeri 0,783'tü. Her bir madde tek tek çıkarıldığında anketin Cronbach's alfa değerleri 0,727 – 0,780 aralığındaydı. KAİHP'nin 5'li likert tipindeki 6 sorusuna ait puanlar, 7 seçenekli duygudurum sorusu ile (r=0,616, p<0,001) ve ÇİYKÖ'nün mesleki tatmin alt ölçeği ile (r=0,744, p<0,001) orta düzeyde korelasyon göstermekteydi. KAİHP'nin 5'li likert tipindeki 6 sorusunun test ve retest skorları güçlü bir korelasyon gösterdi (r=0,915, p<0,001) ve aralarında anlamlı bir fark gözlenmedi (t=-1,183; p=0,241).

Sonuç: Kısa Asistan İyilik Hali Profili'nin Türkçe versiyonu, asistan hekimlerin iyilik halini ölçmede geçerli ve güvenilirdir.

Anahtar kelimeler: Asistan hekimlik, iş doyumu, tükenmişlik, duygudurum, geçerlik, güvenirlik

INTRODUCTION

The term "wellness" is used to define the complex nature of a physician's physical, mental, and emotional well-being.[1] It may also be defined as the "absence of distress" for physicians, including depression, fatigue, and burnout.[2]

The wellness of physicians and residents is important not only on an individual basis, but also for the quality and performance of the health care system. When physicians and/or residents are stressed, their level of depression, sleep deprivation, burnout, and substance abuse, as well as risk to commit suicide increase, alongside their level of malpractice, medical errors, and non-adherence to recommended practices.[1–5] It is widely known that residency is a challenging process due to longer working hours, night shifts, on-call duties, and the dealing with more criticism and demands. Thus, given residents are more prone to burnout and depression due to such factors, their level of wellness has become the subject of serious attention over recent years.[1–9]

It has been emphasized in various studies that evaluation of resident wellness on a regular basis is important, and that resident wellness should not only be evaluated by job satisfaction, but rather that evaluation should also include life satisfaction on whole as well.[1,5,3,7] Even though there are various instruments that are widely used to separately measure burnout and/or job satisfaction, they generally take a relatively long time, and they require a certain amount of effort when it comes to their interpretation.[10–12] The need for a valid instrument in order to assess residents' level of wellness in their busy working environment that can be both rapidly administered and interpreted was put forward by Keim *et al.,* who developed the seven-item "Brief Resident Wellness Profile" in 2006.[6]

In this study, we aimed to investigate the validity and reliability of the Turkish version of the Brief Resident Wellness Profile.

MATERIAL AND METHOD

Instruments and Questionnaire Form

Our questionnaire consisted of demographic and occupational questions (i.e. age, gender, cohabitation status, department, year of graduation, number of months passed in residency, number of weekly working hours, number of shifts during the last week and month), the Brief Resident Wellness Profile (BRWP), and the Professional Quality of Life Scale (ProQOL).

The Brief Resident Wellness Profile (BRWP) includes six five-likert questions, one mood faces item, and two factors identified as 'professional accomplishment' and 'mood', and one 'mood item' with seven mood faces. Higher scores indicate higher professional accomplishment and better mood, respectively. The Cronbach's alpha coefficient of the six five-likert items' is 0.83.[6]

The Professional Quality of Life Scale (ProQOL) was developed by Stamm in 2005 in order to evaluate effects of working with people who have experienced stressful events.[13] It includes three factors, identified as

Table 1. Sample characteristics (n=60)

	Minimum value	Maximum value	Mean	SD
Number of years in profession	2	12	4.92	2.102
Number of months passed in residency	2	49	18.88	13.596
Number of weekly working hours	40	255	80.63	55.483
Number of night shifts in the past week	0	6	1.85	1.716
Number of night shifts in the past month	0	20	5.98	5.792

SD: Standard deviation.

Table 2. Factor loadings of the Brief Resident Wellness Profile's six five-Likert items in exploratory factor analysis

Items	Factor loadings		
	Based on eigenvalues greater than 1.00	When the number of factors are fixed to two	
		"General well-being"	"Professional accomplishment"
1. Enthusiasm about career goals	0.728	0.746	0.192
2. Willingness to do 'whatever it takes'	0.793	0.910	0.060
3. Feeling calm, poised, and stress-free	0.728	0.585	0.436
4. Feeling confident with challenging patients	0.539	0.063	0.884
5. Feeling satisfied with progress so far in the residency	0.653	0.328	0.690
6. Pleased with life overall	0.710	0.693	0.239

'compassion satisfaction', 'burnout', and 'compassion fatigue'. These subscales' higher scores indicate higher levels of 'job satisfaction/compassion satisfaction', higher levels of 'burnout', and 'compassion fatigue'. The Turkish version of the ProQOL was validated by Yeşil *et al.* in 2010, and has a Cronbach's alpha coefficient of 0.848.[14]

Ethical approval for this study was obtained from the ethics committee (resolution number 2016/19-27, dated 14/07/2016) at Dokuz Eylul University. Permission to use the BRWP and the Turkish version of the ProQOL was obtained from the authors via e-mail.

Translation and Cross-Cultural Adaptation

BRWP was first translated into Turkish by the researchers -who are native Turkish speakers with an advanced knowledge of English- separately. Thereafter, all of the researchers had compared and discussed four Turkish versions and decided upon the most appropriate translations that best represented the BRWP. After obtaining one single Turkish form, it was e-mailed for back-translation to an independent interpreter, who is also an academic as well as native speaker of English. The final English version was compared with the original version as translated by the researchers, and the discrepancies were revised in the Turkish version for maintaining the original context and meaning before reaching the final decision on the text.

Afterwards, a pilot study was conducted involving 15 resident physicians in order to evaluate the comprehensibility of the Turkish version of the BRWP. Respondents had easily answered the questions and had reported no difficulty in understanding the questions. The data of these 15 respondents were not included in the main dataset.

Participants and Data Collection

This study was conducted involving 60 resident physicians from Dokuz Eylul University Hospital. Given that a minimum of 10 participants per item is generally recommended, the sample size was calculated based on the six five-Likert items of the BRWP.[15,16] In order not to minimize the effect of workload and night shifts, resident physicians from basic medical science departments were excluded from the study. The sample was distributed in proportion to the total number of resident physicians in surgical (n=155) and non-surgical (n=370) departments, whereupon the study was therefore completed involving 20 resident physicians from surgical departments, and 40 physicians from non-surgical departments, respectively.

Statistical Analysis

After evaluating the face validity through translation and back-translation, our questionnaire was administered to 60 resident physicians, and then repeated again three weeks later. For convergent validity and parallel form reliability, the Professional Quality of Life Scale (ProQOL) was administered concurrently with the BRWP, whereupon their scores were compared using Pearson correlation analysis. For the exploratory factor analysis in order to evaluate construct validity, varimax rotation was preferred and factors with eigenvalues greater than 1.00 were aimed to be extracted in a similar way with the original study. Also, we planned to perform the exploratory factor analysis with number of factors being fixed to two, similar to the original study, if needed. After exploratory factor analysis, confirmatory factor analysis was performed as well. Additionally, intraclass correlation coefficients' estimates and their 95% confidence intervals were calculated based on a single rating, absolute-agreement, 2-way mixed-effects model in order to evaluate the test-retest reliability, and Cronbach's alpha coefficient was measured in order to evaluate the internal consistency.

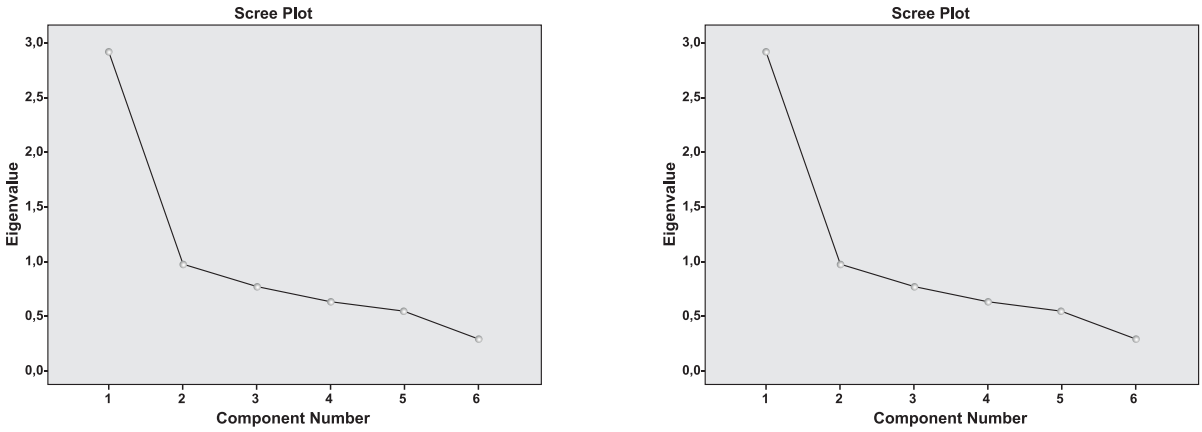


Figure 1. Scree plots for exploratory factor analyses of the six items of the Brief Resident Wellness Profile

All data were analyzed using IBM SPSS v.22 and IBM SPSS Amos v.22 programs.[17,18]

RESULTS

Characteristics of The Sample

The study was completed involving 60 voluntary resident physician participants. Their mean age was 28.48±2.44, with 51.7% (n=31) being female and 49.3% (n=29) being male. When their cohabitation status was asked, 53.3% (n=32) stated cohabiting with someone, whilst 46.7% (n=28) stated living alone. Other sample characteristics are shown in detail in Table 1.

BRWP Scores

Participants' mean score for the six five-Likert items was 17.95±4.316, and their mean score for the mood faces item was 4.12±1.342, thus indicating poor mood and professional accomplishment. The scores of the six items showed no significant relationship with either age, gender, cohabitation status, department, the number of years in the profession, the number of months passed in residency, the number of weekly working hours, the number of night shifts over the past week, or the number of night shifts over the past month (p>0.05). Participants from surgical departments had significantly lower mood faces item scores when compared to those from non-surgical departments (p=0.034; 95% CI [0.06-1.48]). In addition, the mood faces item showed a moderate negative correlation with respect to age (r=-0.410, p=0.001), the number of years in the profession (r=-0.369, p=0.004), the number of months passed in residency (r=-0.339, p=0.008), and the number of weekly working hours (r=-0.310, p=0.016), as well a weak negative correlation with the number of night shifts over the past month (r=-0.259, p=0.045).

Validity

In the exploratory factor analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.732, and the Bartlett's test of sphericity had indicated a chi-square value of 98.504 (p<0.001, df=15). At first, exploratory factor analysis revealed that all of the BRWP's items were loaded in only one factor, contrary to the original version's two factors. This one factor explained 48.523% of the total variance with an eigenvalue of 2.911. When the number of factors were fixed to two, similar to the original study, two factors combined explained 64.385% of the total variance with an eigenvalue of 3.863. First factor included the items 1, 2, 3 and 6, and the second factor included the items 4 and 5, which were named as 'general well-being' and 'professional accomplishment' respectively. Factor loadings of the items for both analyses are shown in Table 2. In addition, after comparing the scree plots, we observed that it remained the same in both analyses (see Figure 1).

When confirmatory factor analysis was performed for both one factor and two factors, an evident difference was observed between these two analyses, and factor loading values improved with two factors. Outcomes of confirmatory factor analysis such as goodness-of-fit indicators and unstandardized and standardized factor loadings are summarized in Table 3 and 4.

Considering all these, we agreed upon interpreting the Turkish version of the BRWP as an instrument with two factors ('general well-being' and 'professional accomplishment').

Reliability

Internal consistency analysis showed that the Cronbach's alpha coefficient of the six five-Likert items of the BRWP

Table 3. Goodness-of-fit indicators of models for the Brief Resident Wellness Profile

Model	χ^2	df	χ^2/df	GFI	CFI	NFI	RMSEA
One Factor	18.116	9	2.013	0.909	0.897	0.825	0.131
Two Factors	14.084	8	1.761	0.933	0.931	0.864	0.114

χ^2:Chi-square value; **df:** Degrees of freedom; **GFI:** Goodness of fit index; **CFI:** Comparative fit index; **NFI:** Normed fit index; **RMSEA:** Root mean square error of approximation

Table 4. Unstandardized and standardized factor loadings for 1-factor and 2-factors confirmatory model of the Brief Resident Wellness Profile

Items	One Factor		Two Factors			
			"General well-being"		"Professional accomplishment"	
	Unstandardized Factor Loadings	Standardized Factor Loadings	Unstandardized Factor Loadings	Standardized Factor Loadings	Unstandardized Factor Loadings	Standardized Factor Loadings
1. Enthusiasm about career goals	1.000	0.696	1.000	0.700		
2. Willingness to do 'whatever it takes'	1.046	0.814	1.083	0.846		
3. Feeling calm, poised, and stress-free	0.961	0.627	0.931	0.610		
4. Feeling confident with challenging patients	0.483	0.376			0.651	0.519
5. Feeling satisfied with progress so far in the residency	0.700	0.499			1.000	0.731
6. Pleased with life overall	0.777	0.627	0.763	0.619		

Table 5. Calculation results of intra-class correlation coefficients of the test-retest scores of BRWP's six items and the mood faces item based on a single rating, absolute-agreement, 2-way mixed-effects model

Items	ICC	95% Confidence interval		F Test with true value 0			
		Lower bound	Upper bound	Value	*df*1	*df*2	*P* value
Six five-Likert items	0.908	0.850	0.944	20.75	59	59	<0.001
Mood faces item	0.783	0.662	0.864	8.312	59	59	<0.001

ICC: Intraclass correlation coefficient; ***df:*** Degrees of freedom **BRWP:** brief resident wellness profile

was 0.783, and the alpha values varied between 0.727 and 0.780 when each item was deleted. In addition to this, mood faces item showed a moderate positive correlation with six five-Likert items of BRWP (r=0.616, p<0.001). Intra-class correlation coefficients of the test-retest scores of BRWP's six items and the mood faces item are shown in detail in Table 5, indicating good reliability.

When the parallel forms reliability was measured, the six five-Likert item scores of the BRWP showed a strong positive correlation with the ProQOL's 'compassion satisfaction' subscale scores (r=0.744, p<0.001). However, the scores of these six items showed no statistically significant correlation with the 'burnout' subscale's scores (r=-0.239, p=0.066) or the 'compassion fatigue' subscale's scores (r=-0.012, p=0.929). In addition, mood faces item scores showed a moderate positive correlation with the ProQOL's 'compassion satisfaction' subscale scores (r=0.470, p<0.001), and a weak negative correlation with both the 'burnout' subscale scores (r=-0.317, p=0.014) and 'compassion fatigue' subscale scores (r=-0.265, p=0.041).

DISCUSSION

Similar to their international counterparts the burnout and job dissatisfaction levels of Turkish residents too have been examined in various studies, with many of them being linked to high levels of burnout and job dissatisfaction due to their high workload.[19–23] Hence, there is a need for evaluating the wellness of Turkish residents in order to detect burnout at an early stage. Yet, because of the intense nature of residency, regular evaluations may not always be possible. In addition, to our knowledge, there are no Turkish instruments for evaluating the wellness of residents and/or physicians. Upon considering all of these factors, we aimed to investigate the validity and reliability of the Turkish version of the Brief Resident Wellness Profile, which is an instrument aimed at overcoming the obstacle of limited time as it evaluates burnout and/or job satisfaction rapidly and easily.

In order evaluate the reliability of the BRWP, we performed both internal consistency and test–retest reliability analysis. It is usually recommended that the Cronbach's alpha coefficient should be larger than 0.70 for an acceptable level of internal consistency.[24] In our study, the Cronbach's alpha coefficient as calculated for the BRWP was 0.783, indicating the strong reliability of Turkish version of the BRWP. The Turkish version of the BRWP was also found to provide consistent results over time in terms of test–re-test reliability analysis results. In addition, a minimum factor load of 0.30 is widely accepted and required in order to provide construct validity.[25] In the initial exploratory factor analysis, factor loading values in our study varied between 0.539 and 0.793. Yet, when confirmatory factor analysis was performed, factor loading values decreased and were between 0.376 and 0.814. When the exploratory and confirmatory factor analyses were repeated with number of factors being fixed to two, similar to the original study, better results were obtained, indicating that the Turkish version of the BRWP with two factors ('general well-being' and 'professional accomplishment') had a better factor construct. However, dissimilar distribution of the items to two factors when compared to the original study might indicate that Turkish residents' and American residents' perception of professional accomplishment

and general mood/well-being are different from each other, or that the importance attributed to some aspects of 'profession' in Turkish residents' lives is more important than the American participants from the original study. This difference also might be explained by cultural and/or social differences, or differences in working hours and/or conditions. In summary, we found that Turkish version of the BRWP was a valid and reliable instrument for assessing resident wellness.

We surveyed 60 residents from Dokuz Eylul University Hospital, whereas in the original study of the BRWP development 34 residents had completed the survey.[6] Although we included more participants, our Cronbach's alpha coefficient was lower in this study. This, again, may be explained by cultural, social, or linguistic differences, as well as by differences in conditions of working environments.

To the best of our knowledge, there are no other versions of the Brief Resident Wellness Profile in the medical literature. Thus, it was not possible to compare the Turkish version with those potentially written other languages. However, when we compared the scores of the BRWP with those of the ProQOL subscale, we found that there was a significant relationship between the scores of 'compassion satisfaction' subscale and BRWP's six five-Likert items, as to be expected. However, there was no significant relationship between the ProQOL's 'burnout' subscale and BRWP's six five-Likert items, contrary to our prediction. This might be due to the characteristics of our sample and their working environment, or due to the sample size, as the p value for this relationship was 0.066.

Our sample size might be one of the limitations of our study, given that the higher number of participants might have provided better validity and reliability test outcomes. Yet, our sample represented our target population, as we included residents in proportion to the total number of residents working in surgical and non-surgical departments. In addition, to our knowledge, this study provides the first Turkish instrument for the wellness of evaluating residents.

CONCLUSION

Overall, we may claim that the Turkish version of the BRWP is valid and reliable in light of our findings, and thus can be used for evaluating the wellness of residents on a regular basis within their busy working environment. Future studies might consider larger sample sizes and follow-up for evaluating the wellness of residents, as well as the effects of possible related factors on wellness.

*The authors declare that there are no conflicts of interest.

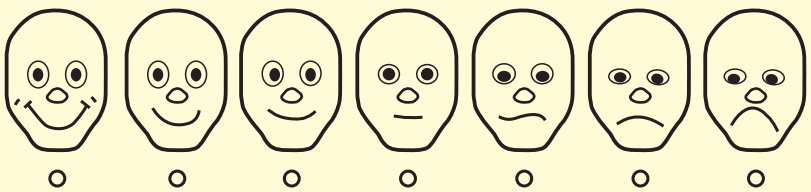
APPENDIX

KISA ASİSTAN İYİLİK HALİ PROFİLİ

Aşağıda bireylerin deneyimlediği bazı genel hisleri ve tutumları listelenmiştir. Her biri için bugün dahil son bir haftadır ne sıklıkta deneyimlediğiniz veya hissettiğinizi işaretleyiniz.

His / Tutum	Değerlendirme Ölçeği				
	Hiç	Nadiren	Bazen	Sıklıkla	Her zaman
Kariyer hedefleri konusunda heves	☐	☐	☐	☐	☐
'Her ne gerekiyorsa yapmak' için istek	☐	☐	☐	☐	☐
Sakin, özgüvenli ve stressiz hissetme	☐	☐	☐	☐	☐
Çetrefilli hastalarda kendinden emin hissetme	☐	☐	☐	☐	☐
Asistanlıkta şimdiye kadarki gelişiminden tatmin olma	☐	☐	☐	☐	☐
Genelde hayattan memnun olma	☐	☐	☐	☐	☐

Aşağıda asistanların deneyimlediği genel duygu durumlarını temsil eden bir dizi yüz ifadesi sunulmuştur. Bugün dahil son bir haftadır nasıl hissettiğinizi en iyi gösteren yüzü seçiniz.



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