Reliability and Validity of the Turkish Version of the Clinical Opiate Withdrawal Scale (COWS)*

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ABSTRACT:
Reliability and validity of the Turkish Version of the Clinical Opiate Withdrawal Scale (COWS)

Objective: The Clinical Opiate Withdrawal Scale (COWS) is an observer-based instrument that grades the signs and symptoms of opiate withdrawal. Our purpose was to evaluate the interrater reliability and validity of the Turkish version of the COWS.

Method: Fifty-three opiate-dependent patients showing signs of opioid withdrawal were enrolled. The patients were assessed with the Turkish version of the COWS by two observers independently and simultaneously. The patients were also asked to complete the Addiction Profile Index (API). The intra-class correlation coefficient was used to determine agreement between two observers. Pearson's correlation method was utilized to analyze the correlations between the COWS and the API.

Results: The interrater reliability coefficient of the items and total COWS score ranged between 0.704 and 0.921 and all correlations were highly significant. Cronbach's alpha coefficients of 0.938 (first observer) and 0.917 (second observer) were obtained for the COWS. Correlation analyses indicated that API was significantly correlated positively with the COWS.

Conclusion: We found that the Turkish version of COWS had good interrater reliability, internal consistency, and construct validity. Our results suggest that the Turkish COWS is a valid and reliable instrument for determining opiate withdrawal severity.

Keywords: opiate, reliability, scale, Turkish, withdrawal

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INTRODUCTION

It is well known that the use of opioids is one of the most serious social and health problems in the world: 0.4% of the global population is estimated to abuse opioid drugs[1]. Opioid abuse is an important public health issue for Turkey as well[2]. Thus, treatments of opioid dependence and withdrawal symptoms are of clinical importance. Characteristic signs and symptoms of opiate withdrawal such as anxiety, irritability, insomnia, muscular and abdominal pains, sweating, rhinorrhea/lacrimation, yawning, increased pulse rate, nausea/vomiting, and flushing may be seen during detoxification treatment for opioid dependence. Thus, it is important for clinicians to determine the severity of withdrawal symptoms in order to establish appropriate treatment strategies. Several instruments, such as the Addiction Research Center Inventory (ARCI)[3], Opiate Withdrawal Scale (OWS)[4], Short Opiate Withdrawal Scale (SOWS)[5], and Clinical Institute Narcotic Assessment (CINA)[6], were developed to measure withdrawal symptoms quantitatively. However, the Clinical Opiate Withdrawal Scale

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(COWS)[7] is the most widely used instrument for evaluating opiate withdrawal because of its simplicity and the ability to detect a number of subjective symptoms of withdrawal. Additionally, the scale can be usefully applied to patients who are planned to receive substitution treatments[8]. The COWS assesses not only the symptoms but also the signs of opiate withdrawal, which makes it an ideal instrument.

To our knowledge, there is no reliability and validity study of an opioid withdrawal instrument in Turkey. Thus, we sought to determine whether the reliability and construct validity of the Turkish version of the COWS were acceptable.

METHOD

Participants

Fifty-three consecutive inpatients aged 18 and above who met DSM-IV criteria for opiate dependence for at least 1 year were enrolled. The patients were admitted to detoxification treatment for opiate dependence at the Alcohol and Substance Addiction Treatment and Research Center of Akdeniz University. The Ethics Committee of Akdeniz University approved our study. Every subject signed a consent form prior to participation in the study.

Measures

The Clinical Opiate Withdrawal Scale (COWS): The COWS[7] is comprised of 11 items — 1 purely subjective symptom item, 6 objective sign items, and 4 items that included subjective and objective components. It evaluates 11 signs/symptoms of opiate withdrawal (pulse rate, sweating, restlessness, pupil size, bone or joint aches, runny nose or tearing, gastrointestinal upset, tremor, yawning, anxiety or irritability, and gooseflesh skin). Each item is rated from 0 to 4 or 5. The maximum possible score is 48. Higher scores indicate a higher severity of withdrawal symptoms. According to the total score, the severity of opiate withdrawal is categorized as follows: mild (5-12);

moderate (13-24); moderately severe (25-36); and severe (37 and above).

Addiction Profile Index (API): The API[9] is a self-administered scale consisting of 37 items. The items are grouped under five subscales: characteristics of substance use; dependency diagnosis; the effects of substance use on the user; craving; motivation to quit using substances. The internal consistency of the API was found to be high (Cronbach's α=0.89). This measure was applied to evaluate the discriminant validity of the COWS.

Procedure

Wesson and Ling's permission was obtained before adapting the COWS for Turkish-speaking patients. The scale was translated into Turkish by three independent physicians fluent in English and subsequently reverse-translated into English by three different translators. The three English versions were compared with the original scale items. The differences were analyzed, and the items were revised where necessary. All the misinterpreted items were replaced and inconsistencies were removed by a committee composed of five healthcare providers with more than three years' experience in addiction psychiatry. The participants were carefully monitored until they demonstrated signs of opioid withdrawal. All subjects were assessed with COWS by two observers (MK and MG) independently and simultaneously. The patients were also asked to complete the API.

Statistical Analyses

Data were analyzed using the SPSS 20.0 package. The intra-class correlation coefficient was used to determine agreement between two observers. Cronbach's alpha coefficients and item total score correlations were calculated for the reliability of the scale. For the validity of the scale, Pearson's correlation coefficient was used to determine the correlations between the COWS and the API.

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Table 1: Socio-demographic status of the study participants		
Age (mean±SD) (years)		25.3±5.7
Female/Male (number)		3/50
Educational level (%)	Grades 1-5	7.6
	Grades 6-8	67.9
	Grades 9-12	24.5
Marital status (%)	Single	67.9
	Married	18.9
	Divorced/widowed	13.2
Duration of opioid use (months) (mean±SD)		62.6±40.6

Table 3. Inter-rater correlations of the Clinical Opiate Withdrawal Scale items		
	intraclass correlation	p value
Resting pulse rate	0.756	<0.001
Sweating	0.812	<0.001
Restlessness	0.704	<0.001
Pupil size	0.741	<0.001
Bone or joint aches	0.844	<0.001
Runny nose or tearing	0.715	<0.001
Gastrointestinal upset	0.891	<0.001
Tremor	0.727	<0.001
Yawning	0.714	<0.001
Anxiety or irritability	0.804	<0.001
Gooseflesh skin	0.921	<0.001
Total score	0.939	<0.001

Table 2: Correlations between total COWS score and API subscales and API total score for each observer				
	Total COWS score (First observer)		Total COWS score (Second observer)	
	r	p	r	p
Characteristics of substance use	0.261[†]	<0.01	0.203*	p<0.05
Dependency diagnosis	0.302[†]	<0.01	0.331*	p<0.05
Effects of substance use on the user	0.154*	p<0.05	0.194*	p<0.05
Craving	0.242[†]	<0.01	0.187*	p<0.05
Motivation to quit using substances	0.164*	p<0.05	0.212[†]	<0.01
Total API score	0.297[†]	<0.01	0.321[†]	<0.01

RESULTS

The mean age of the patients was 25.3±5.7 years (range: 18-43 years). Among the participants, 3 were female and 50 were male. Table 1 provides the sociodemographic profile of the participants.

Internal Consistency of the COWS

Cronbach's alpha coefficients of 0.938 (first observer) and of 0.917 (second observer) were obtained for the COWS, which suggests that the internal validity of the Turkish version of the COWS is acceptable. Item-total correlations ranged from 0.534 to 0.782 (1st observer, p<0.001) and from 0.466 to 0.770 (2nd observer, p<0.001).

Correlations with BAPI

Correlation analyses indicated that API was positively, mildly, and statistically significantly correlated with the COWS (Table 2).

Interrater Reliability

Correlations of the total scores based on the observers' ratings were found to be high; the interrater reliability coefficient of the items and total COWS score ranged between 0.704 and 0.921 and all correlations were highly significant (p<0.001) (Table 3).

DISCUSSION

This is the first study to evaluate the psychometric properties of the COWS in Turkish opiate dependent patients. Our results confirm the discriminant validity and internal reliability of the COWS in Turkish-speaking patients. According to the findings of this study, the Turkish version of the COWS is a reliable and valid measure for determining the severity of opiate withdrawal symptoms.

Determining the severity of opiate withdrawal symptoms is crucial particularly in detoxification treatment. Likewise, it is vital to monitor

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withdrawal signs and symptoms when starting substitution medications such as buprenorphine or methadone[7,10-13].

Internal consistency of the COWS was high, demonstrating the scale to be reliable in measuring the severity of opiate withdrawal. The COWS was found to correlate with the API. This finding confirms that the construct validity of the COWS is favorable. The results of the present study are in general agreement with those of a previous validation study of the COWS in opioid dependent individuals[8].

Inter-rater reliability for each item and total score were significantly high for the COWS, indicating that different observers can detect similar severity of withdrawal symptoms in a particular patient. To our knowledge, this study is the first to evaluate inter-rater reliability of the COWS.

A number of limitations has to be considered in the interpretation of the results of the present study. First, the study sample was relatively small. Thus, the results should be replicated in a larger population. Second, the study sample consisted mostly of men (94.3%), which might limit the generalizability of the results for each gender. Third, although the two observers independently assessed the patients, observers working in the same setting might find similar results because of the relatively standardized clinical view. Hence, our findings should be replicated by using researchers blinded to the clinical status of the patients.

Our results indicate that the Turkish version of COWS had good internal consistency, inter-rater reliability, and concurrent validity and it was significantly correlated with a self-report scale. Although our findings are preliminary, they suggest that COWS shows significant results regarding validity measures. Thus, we maintain that the Turkish version of the COWS is a valid and reliable instrument for determining opiate withdrawal severity.

Acknowledgements

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KLİNİK OPİYAT YOKSUNLUK ÖLÇEĞİ (KOYÖ)

Her madde için hastanın bulgu ve belirtilerini en iyi tanımlayan numarayı daire içine alınız. Sadece opiyat yoksunluğu ile açıkça ilişkili olan belirtilere göre puanlama yapınız. Örneğin hastanın kalp hızı, değerlendirmeden hemen önce koşmuş olması nedeniyle artmışsa, nabız hızındaki artış puanlamaya dâhil edilmemelidir.

Hasta Adı Soyadı: Tarih: /   /   Saat:

Dinlenme esnasında nabız hızı: _____atım/dakika Hasta bir dakika oturduktan veya uzandıktan sonra ölçülür. **0** Nabız hızı 80 veya daha düşük **1** Nabız hızı 81-100 **2** Nabız hızı 101-120 **4** Nabız 120'nin üstü	**Gastrointestinal yakınma:** Son yarım saat boyunca **0** Gastrointestinal belirti yok **1** Mide krampları **2** Bulantı veya yumuşak dışkı **3** Kusma veya ishal **5** Çok sayıda ishal veya kusma atakları
Terleme: Son yarım saat içinde, oda ısısı ile veya hasta aktivitesi ile açıklanamayan **0** Ürperme veya kızarma bildirilmemesi **1** Öznel olarak ürperme veya kızarma bildirilmesi **2** Kızarma veya yüzde gözlenebilir nemlenme **3** Yüz veya alında ter damlacıkları **4** Yüzü ter kaplaması	**Tremor:** Uzatılan ellerde gözlemlenen **0** Tremor yok **1** Tremor hissedilebilir ama gözlemlenemez **2** Gözlemlenebilir hafif tremor **4** Belirgin tremor veya kas seğirmesi
Huzursuzluk: Değerlendirme esnasında gözlemlenen **0** Sakin şekilde oturabilir **1** Sakin şekilde oturmakta zorluk çektiğini bildirir ama sakin oturabilir **3** Kolların/bacakların sık sık ve gereksiz hareketleri **5** Birkaç saniyeden fazla sakin oturamama	**Esneme:** Değerlendirme esnasında gözlemlenen **0** Esneme yok **1** Değerlendirme esnasında bir veya iki kez esneme **2** Değerlendirme esnasında üç kez veya daha fazla esneme **4** Birçok kez esneme /dakika
Pupil boyutu **0** Pupiller iğne başı boyutunda veya normal boyutta **1** Pupiller oda ışığında muhtemelen normalden geniş **2** Pupiller orta derecede genişlemiş **5** Pupiller irisin sadece kenar kısmı görünecek kadar genişlemiş	**Anksiyete veya irritabilite** **0** Yok **1** Hasta anksiyetesinin veya irritabiltesinin arttığını bildirir **2** Hasta açık şekilde anksiyöz veya irritabldır **4** Hasta o kadar anksiyöz veya irritabldır ki görüşmeye katılmakta zorlanır
Kemik veya eklem ağrıları: Eğer hastanın daha önce ağrısı varsa, sadece opiyat yoksunluğuna bağlanabilecek ağrı puanlanır. **0** Yok **1** Hafif yaygın rahatsızlık **2** Hasta şiddetli ve yaygın eklem/kas ağrısı bildirir **4** Hasta eklemlerini veya kaslarını ovuşturur ve rahatsızlık nedeniyle sakin oturamaz	**Kaz derisi görünümü** **0** Deri düzdür **3** Deride piloereksiyon hissedilebilir veya kollardaki tüyler dikleşmiştir **5** Belirgin piloereksiyon
Burun akıntısı veya göz yaşarması: Soğuk algınlığı belirtileriyle veya alerjilerle açıklanamaz. **0** Yok **1** Burun tıkanıklığı veya alışılmadık göz sulanması **2** Burun akıntısı veya göz yaşarması **4** Sürekli burun akıntısı veya gözyaşının yanaklardan akması	**TOPLAM PUAN:** (Toplam puan, 11 maddeden alınan puanların toplanması ile elde edilir)

Puanlama: **5-12**=hafif yoksunluk; **13-24**=orta yoksunluk; **25-36**=orta derecede şiddetli yoksunluk; **>36**=şiddetli yoksunluk