

# Correlation of Psychological Assessment Using SCL-90-R Scale With Surgical Outcome

## SCL-90-R Kullanılarak Yapılan Psikolojik Değerlendirme ile Cerrahi Son Durumun İlişkisi

### ABSTRACT

**OBJECTIVE:** To investigate the relationship between psychosomatic disorders and surgical outcome using the Symptom Check List-90-Revised (SCL-90-R) scale.

**METHOD:** A cross-sectional study was performed to assess the impact of preoperative psychological factors on surgical outcome by using the Symptom Check List-90-Revised scale. Sixty-one patients were evaluated preoperatively with the Symptom Check List-90-Revised scale while they verbally reported their pain at postoperative 2, 4, 6 and 24 hours. Neurological and radiological assessments were carried out at the same time.

**RESULTS:** Symptom Check List-90-Revised scores were under 90 in 10 patients (16.5%) and over 90 in 51 patients (83.5%). Preoperative scores seemed to be highly related to sex, age and type of pathology. There was a statistically significant negative correlation between the score and the benefit from surgery (Fisher's Exact Test,  $p=0.007$ ).

**CONCLUSION:** As psychosomatic disorders are prominent in all health conditions, patient selection including psychological assessment may be a critical factor in determining functional outcomes in surgery. Patients with psychosomatic personalities may obtain less benefit from surgical intervention although surgical techniques are appropriate and postoperative clinical and radiological findings are as expected. Based on this limited sample of 61 patients, the Symptom Check List-90-Revised seems to be a useful tool in identifying additional psychological factors that may be effective on surgical outcome.

**KEY WORDS:** Prognosis, psychosomatic disorder, psychological evaluation

### ÖZ

**AMAÇ:** Psikosomatik yakınmaların cerrahi sonuçlara etkisini ve ilgisini, SCL-90-R skalasını kullanarak araştırmak.

**METOD:** Cerrahi sonuçlara ameliyat öncesi psikolojik faktörlerin etkisini değerlendirmek üzere, SCL-90-R skalası kullanılarak kesitsel çalışma gerçekleştirildi. Preoperatif SCL-90-R skorları ve postoperatif klinik ve radyolojik değerlendirme ile beraber 2, 4, 6 ve 24. saatlerde ağrının hastanın sözel yanıtına göre değişimi esas alınarak 61 hasta değerlendirildi.

**SONUÇLAR:** SCL-90-R skorları 10 hastada (%16.5) 90'ın altında; 51 hastada (%83.5) 90'ın üzerinde idi. Preoperatif skor yüksekliğinin yaş, cins ve patoloji tipi ile orantılı olduğu izlendi. Operasyondan fayda görmekte skor arasında istatistiksel olarak anlamlı farklılık bulundu. (Fisher's Exact Test,  $p=0.007$ ).

**TARTIŞMA:** Psikosomatik hastalıklar sağlığın tümü üzerinde etkili olduğundan cerrahinin başarısı için hasta seçiminde psikolojik faktörleri de dikkate almak gerekir. Psikosomatik kişilik yapısına sahip hastalar, cerrahi teknik uygun, postoperatif klinik ve radyolojik sonuçlar başarılı olsa da, cerrahi girişimden daha az fayda görürler. 61 örneklik bu çalışmaya dayanarak, SCL-90-R nin, cerrahi sonuçları etkileyen ek psikolojik faktörleri tanımlamada faydalı bir yöntem olduğunu söyleyebiliriz.

**ANAHTAR SÖZCÜKLER:** Prognoz, psikosomatik hastalık, psikolojik değerlendirme

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## INTRODUCTION

Psychological factors tend to be neglected in clinical practice although the comorbidity of anxiety disorders with surgical disorders is high (6). The necessity of designing interventional strategies to deal with psychological factors related with surgical disorders is recognized. Psychosomatic disorders are known to have a negative impact on the healing process. We investigated the association in a cross-sectional study from the psychological health perspective, including preoperative individual psychological symptom-based characteristics as well as postoperative overall outcomes. The Symptom Check List-90-Revised (SCL-90-R) scale was deemed useful as a tool to identify the effect of psychological determinants on surgical outcome.

## PATIENTS AND METHOD

Sixty-one consecutive patients (30 females and 31 males) who underwent neurosurgical intervention at the University of Kırıkkale, Department of Neurosurgery between 2001 and 2004 were analyzed. The patients' ages were between 16-68 years with two patients in the 16-20 age group; 27 patients in the 21-40 age group; 29 patients in the 41-60 age group; and three patients over 60 years of age. The operative disorders were located in 12 patients at the cranial region (one subarachnoid hemorrhage, one bilateral frontotemporal meningioma, two skull base tumor, three extracranial lipomas, two pituitary adenomas, two cerebellopontine angle tumors, one posterior fossa tumor), at the lumbar region in 37 patients (35 lumbar herniated discs, two recurrent discs), at the cervical region in six patients (cervical discopathy) and at the peripheral regions in six patients (carpal tunnel syndrome). The clinical, neuroradiological and operative technical profiles of all the cases were assessed, based on data from clinical records including check-ups after surgery.

SCL-90-R was used to evaluate the psychological health status of the patients. The SCL-90-R is a questionnaire containing 90 items about psychosomatic complaints of the patient, and covers nine scales of the following domains: somatization, depression, anxiety, phobia, hostility, interpersonal sensitivity, obsessive-compulsive behaviors, paranoia and psychoticism (4, 8). The SCL-90 R is a symptom-oriented scale for patients with anxiety disorders in a psychodynamic inpatient setting. It is a psychological tool to measure the level of stress related to distressing conditions. The usability and

reliability of the Turkish version was reviewed by Dağ et al in 1991 (1). Stressful personality, depression, anxiety and somatization are generally measured using the five level (between 0-4) Likert-type question-answer model (10). Increasing scores generally indicate that the patient is anxious about the symptoms and signs. Although rarely used in psychiatry, it is commonly helpful in other medical disciplines or investigations.

The questionnaire was independently administered in a standard question-answer format and the patient was requested to answer all questions the day before surgery with numbers coded as 0; none; 1 less; 2 fair; 3 severe; 4 unbearable. The preoperative pain level was assessed by verbal statement of the patient. The threshold score was accepted to be "90". All decisions about the necessity and technique of the surgery were made by the neurosurgical team. We evaluated the surgical results using verbally reported changes in pain (2) at the postoperative 2nd, 4th, 6th and 24th hours together with postoperative periodic neurological assessments. Furthermore, radiographic analysis was performed in a blinded fashion in subsequent months. Following data input, the statistical analysis was carried out with the SPSS package program, version 10.00 (SPSS, Chicago, IL, USA).

## RESULTS

The SCL-90-R scores were under 90 in 10 patients (16.5%) and over 90 in 51 patients (83.5%). 74% of men and 63% of women had scores under 90. All of the 0-20 age group, 74% of the 21-40 age group, 62% of the 41-60 age group and 66% of the 60 and over age group had scores under 90. Four of the twelve patients with cranial pathologies (11.1%), 11 of the 37 patients with lumbar pathologies (29.7%) and 4 of the 6 patients with peripheral nerve disease (66.7%) had scores higher than 90. There was a statistically significant correlation between the score and the localization of the pathology ( $\chi^2: 14.595$   $p=0.06$ ). The patients with lumbar pathologies had as high scores as those with peripheral neuropathies. Postoperatively, 76.5% of the patients who had scores lower than 90 stated at 2, 4, 6 and 24 hours after surgery that the operation was beneficial while only 30% of patients with higher scores expressed the same. There was a statistically significant negative correlation between the score and the benefit from surgery (Fisher's Exact Test,  $p=0.007$ ). Postoperative neurological and radiological

examinations (neurophysiological evaluation in patients with carpal tunnel syndrome) of all patients revealed a successful surgery, including the follow-up period. No complication, mortality or morbidity was recorded in this series. The overall surgical outcomes were better in patients who had SCL-90-R scores under 90. Six of 11 females who had scores higher than 90 (54.5%) and 6 of 8 males who had scores higher than 90 (75%) had benefited from surgery. 5 of 11 patients with lumbar pathologies and higher scores (45.5%) declared that surgery was useful.

### DISCUSSION

Psychological factors are known to have a negative impact on health problems (3). We investigated this association in a cross-sectional study from a surgical perspective, assessing the effects of individual psychosomatic complaints on the surgical outcome. The SCL-90-R may be used as qualitative measurement tool (5, 6, 7, 9) with sex, age, education and cause of the pain as the important determinants. It appears that a poor surgical outcome, especially resistant pain despite a postoperative radiological examination that conforms to expectations, is mainly associated with high scores on the SCL-90-R scale. These patients commonly feel that the operation "did not work", have worse interpersonal relations with the hospital staff, suffer from depression and conversion, demonstrate resistance to walking or sitting due to the fear of disturbing the operative site, have fear of feeling "still ill" and show an increased tendency to using pain killers. The scores seemed to be higher in females, indicating sensitivity to pain, and in the 41-60 age group, indicating that middle-aged persons are under many kinds of stress.

Our preliminary findings indicated that psychological factors may be important when choosing between different treatment strategies, deciding on the extent of surgery and for the overall outcome. Postoperative pain management is especially difficult in patients with psychosomatic disorder since the accepted mode of pain management after surgery is patient-controlled analgesia. When the patients were classified by the type of their disorder, high scores were associated with the diseases where pain was the predominant symptom. The patients with higher scores required analgesics in increased doses and varieties. These patients should be assessed preoperatively by a

psychiatrist and fully informed about the whole operative procedure to ensure a better surgical outcome. After employing such a preoperative psychological scoring system, the surgeon may also decide to use radiological and neurological improvement as better ways of judging the outcome instead of relying on the patient's own assessment. Following individual assessment, less complicated surgical modalities may be chosen on a symptom relief base. Pain management may also be supported with additional psychological drugs rather than increasing the dose or changing the spectrum of analgesics.

Considering such benefits, the routine use of qualitative psychological assessments such as the SCL-90-R scale is strongly advocated in neurosurgical clinical practice.

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