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# The Acromegaly Treatment Satisfaction Questionnaire (Acro-TSQ): Turkish adaptation, validity, and reliability study

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## Abstract

# Purpose

The patient-reported outcome becomes important to evaluate the situation perceived by the patients and to develop new strategies. This study aims to adapt the Acromegaly Treatment Satisfaction Questionnaire (Acro-TSQ), which was specially developed for patients with acromegaly, into Turkish by conducting a validity and reliability study.

# Methods

After the translation and back-translation process, Acro-TSQ was filled in by face-to-face interviews with 136 patients diagnosed with acromegaly and currently receiving somatostatin analogue injection therapy. Internal consistency, content validity, construct validity, and reliability of the scale were determined.

# Results

Acro-TSQ had a six-factor structure and explained 77.2% of the total variance in the variable. The Cronbach alpha value calculated for internal reliability showed high internal consistency (Cronbach's alpha = 0.870). Factor loads of all items were found to be between 0.567 and 0.958. As a result of EFA analysis, one item fell into a different factor in the Turkish version of the Acro-TSQ, different from its original form. CFA analysis shows that acceptable fit values are obtained for fit indices.

# Conclusion

The Acro-TSQ, a patient-reported outcome tool, shows good internal consistency, and good reliability, suggesting it is an appropriate assessment tool for patients with acromegaly in the Turkish population

## Introduction

Acromegaly is a rare and slowly progressing disease caused by an increase in growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Prolonged exposure to the excess hormone can cause structure disturbance and systemic findings such as acral growth, facial overgrowth, hyperhidrosis, osteoarthritis, sleep apnea, impaired respiratory function, carpal tunnel syndrome, colon polyps, and metabolic and cardiovascular diseases. In addition, changes in physical appearance can cause emotional distress [1].

Management of acromegaly encompasses surgery, radiotherapy, and medical approach; they have some advantages and disadvantages. Generally, surgery is considered the first line treatment option, however, if remission cannot be achieved after surgery, the other treatment modalities should be considered. Somatostatin analogs (SSAs) such as octreotide, lanreotide, or pasireotide are the most commonly utilized first-line medical therapy for acromegaly patients when surgery cannot succeed [2]. SSAs administered as

intramuscular (octreotide long-acting repeatable (LAR)) or deep subcutaneous injections (lanreotide depot) have common side effects such as injection site reactions and gastrointestinal (GI) symptoms. Despite normalization of GH and IGF-1, symptoms of acromegaly may persist. Life-long injections and ongoing symptoms significantly burden the functionality of patients with acromegaly, well-being, and daily life activities [3].

The treatment strategy aimed at improving mortality and morbidity by providing hormonal control in patients with acromegaly has yielded successful results. Although the quality of life (QoL) of patients with acromegaly shows somewhat improvement after treatment, it remains a major concern as it is still lower compared to the normal population [4]. Patients generally report lower QoL scores in the active phase of the disease than in the controlled phase. Acromegaly patients often complain of joint pain, fatigue, and neuropsychological problems due to irreversible joint abnormalities, body composition, and macroscopic brain architecture changes [5].

Disease-specific questionnaires offer the opportunity to assess patients' self-perceived status and identify patients who require further evaluation and treatment. Patient-reported outcomes (PROs) evaluation in acromegalic patients are becoming increasingly popular [6, 7]. The Acromegaly Treatment Satisfaction Questionnaire (Acro-TSQ) is a new PRO measure and has been developed specifically for use on acromegaly patients receiving injectable SSAs treatment [8]. Acro-TSQ assesses symptom interference, treatment satisfaction, and convenience, injection site interference, GI side effect interference, and Emotional Reaction.

The World Health Organization defines the quality of life as an individual's perceptions of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concerns [9]. Thus, questionnaires and tools developed for the assessment of the quality of life should be verified according to the cultural and linguistic structure of the society in which they are used. Therefore, we aimed to confirm the validity and reliability of the Turkish version of Acro-TSQ for use in clinical practice.

## Subjects And Methods

# Design and type of the study

This is a cross-sectional and methodological study to determine the reliability and validity of the Acro-TSQ in acromegaly patients in Turkish Society.

# Sample of the study

This study was conducted with acromegaly patients in four different tertiary care centers in Turkey between October 2020 and October 2021. Inclusion criteria for the research: Age over 18 years, acromegaly patients who had been on SSA treatment for at least least three months and to be literate. Exclusion criteria for the research: Diagnosis of known neurocognitive disorders, patients unable to communicate, patients with no concent and patients taking pegvisomant. Illiterate people answered the questions accompanied

by their literate relatives. The The Acro-TSQ scale consists of 27 items. 2 items in the scale directly question oral SSA treatment. (Q24 and Q25). Since there is no oral SSA treatment in our country, these 2 items were excluded from the evaluation. Thus, a scale question consisting of 25 items was used. In validity and reliability studies, it is recommended that the sample size be at least fivefold the number of items in the scale [10]. Therefore, this study aimed to reach at least 125 people considering the risk of loss during the study, an additional eleven people were included in the study. Finally, the study was completed with 136 people in line with the literature recommendation.

# Data collection procedure and tools

Researchers collected data by face-to-face interview method and using “Personal Information Form” and “Acro-TSQ”. Acro-TSQ was completed by the patients themselves.

The questions in the Personal Information Form are as follows; age, gender, height, weight, body mass index, living with, marital status, education status, occupation, monthly income, smoking, alcohol use, acromegaly treatment methods, current preparations, illness status, and other comorbid diseases.

The Acro-TSQ was developed by Fleseriu et al. in 2019 [8]. This scale has 27 items and 6 subscales. Symptom Interference (SI) (4 items; 5,6,7,8), Treatment Convenience (TC) (6 items; 18,19,20,21,22,23), Injection Site Interference (ISI) (2 items; 13,14), GI Interference (GII) (3 items; 10,11,12), Treatment Satisfaction (TS) (3 items; 1,2,26), Emotional Reaction (ER) (3 items; 15,6,17) were evaluated in subscales. SI items' (5–8) responses range from 1 (Not at all) to 5 (Very much). For question 8 (work activities), it was coded 6 if respondents indicated that they did not work due to acromegaly, and 7 if they stated that they did not work for any other reason. TC items’ (18–23) responses ranged from 1 (most positive) to 5 (most negative). For questions 22 (uncomfortable to schedule injections) and 23 (uncomfortable to travel for injections), the code not applicable was recorded as 6. ISI items' (13,14) responses range from 1 (Not at all) to 5 (Very much). If the participant did not experience any injection site reactions (question 13a = Yes), the item response was entered as 0. GII items' (10,11,12) responses range from 1 (Not at all) to 5 (Very much). In question 12 (work activities), respondents were coded 6 if they stated that they did not work due to acromegaly, and 7 if they stated that they did not work for any other reason. TS items' (1,2) responses range from 1 (Excellent) to 5 (Poor). Item responses for question 24 range from 1 (Very satisfied) to 7 (Very dissatisfied). ER items’ (15,16,17) responses for questions range from 1 (Not at all) to 5 (Very much). The following items could be reported as separate items to provide additional information rather than being included as part of the Acro-TSQ scale scoring: 3, 4, 9, and 27. Items 24 and 26, in which oral pill therapy was evaluated, were excluded because oral therapy was not available in our country.

# Translation and cross-cultural adaptation

To adapt the scale to Turkish, permission was obtained from Chiasma Inc. (acquired by Amryt Pharma). The language validity of the scale was evaluated by highly qualified translators using the translation-back translation method. The translation of the scale was done at different times by ten independent specialists, including six English language specialists, two Turkish language specialists, and two native medical doctors. Afterward, a single scale form was created with the consensus of the specialist. As a second step,

the Turkish translation of the scale was translated back into its original language by two independent specialists who are fluent in both languages. The original version of the scale and the translated version were compared by a native English speaker, and thus the final version of the scale was created.

# Data Analysis

We first ran an exploratory factor analysis (EFA) to determine the factorial structure of the scale. To test if the data is suitable for conducting EFA, Kaiser–Meyer–Olkin's (KMO) measure of sampling adequacy and Bartlett's test of sphericity were run. In EFA, we extracted the factors by using principal component analysis. As most of the factors correlated with one another, promax, an oblique rotation, was used to rotate the factors. Next, we conducted a confirmatory factor analysis (CFA) to verify the factorial structure of the scale. Then, we ran a reliability analysis for estimating the internal consistency of the scale through Cronbach's alpha. We used SPSS 24 to run EFA and reliability analysis and AMOS 23 extension of SPSS for CFA.

## Results

# Sample Characteristics

Of those included in the study, 49.3% were female and 50.7% were male. The mean age of all participants was 51.9 ± 12.6 years. The literacy rate of the participants was quite high (95.6%). Patients included in the study had at least one history of transsphenoidal surgery. Most of these patients were under control with at least one medical agent (85.3%) (Table 1).

Table 1
Demographic and clinical characteristics

| | mean | sd |
|---|---|---|
| Age (years) | 51.9 | 12.6 |
| | n | % |
| Sex | | |
| Female | 67 | 49.3 |
| Male | 69 | 50.7 |
| Marital status | | |
| Married | 102 | 75.0 |
| Single | 20 | 14.7 |
| Divorced/Widowed | 14 | 10.3 |
| Living together | | |
| Single | 8 | 5.9 |
| Partner/child | 110 | 80.9 |
| Parents | 14 | 10.3 |
| Others | 4 | 2.9 |
| Education | | |
| Illiterate | 6 | 4.4 |
| Primary school | 49 | 36.0 |
| Middle school | 19 | 14.0 |
| High school | 39 | 28.7 |
| University | 20 | 14.7 |
| Postgraduate | 3 | 2.2 |
| Monthly Income (₺) | | |
| < 3000 | 57 | 41.9 |
| 3000–5000 | 51 | 37.5 |
| 5000–10000 | 24 | 17.6 |
| > 10000 | 4 | 2.9 |
| Smoking | 34 | 25.0 |

| | mean | sd |
|---|---|---|
| Alcohol use | 9 | 6.6 |
| Number of surgeries | | |
| 1 | 92 | 67.6 |
| 2 | 34 | 25.0 |
| 3 | 10 | 7.4 |
| Radiation for acromegaly treatment | 42 | 30.9 |
| Current treatment | | |
| Lanreotide (Somatuline Depot/Autogel) | 39 | 28.7 |
| Octreotide (Sandostatin LAR Depot) | 66 | 48.5 |
| Combined treatment (SSA + dopamine agonist) | 31 | 22.8 |
| Rating of acromegaly control | | |
| Controlled | 116 | 85.3 |
| Partially controlled | 17 | 12.5 |
| Not well controlled | 3 | 2.2 |
| Co-morbid conditions | | |
| Hypertension | 50 | 36.8 |
| Diabetes mellitus | 58 | 42.6 |
| Sleep apnea | 7 | 5.1 |
| Headaches | 24 | 17.6 |
| Osteoarthritis | 24 | 17.6 |
| Psychiatric disorder | 10 | 7.4 |
| Gallbladder stone | 30 | 22.1 |

Table 2
Mean score, item-total score correlation coefficients, factor loadings, alpha coefficients, and explained variance of the Acro-TSQ

| Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Mean (sd) | Corrected item-total correlations | Cronbach's α if item deleted |
|---|---|---|---|---|---|---|---|---|---|
| Q5 | 0.909 | | | | | | 0.49 (1.08) | 0.398 | 0.861 |
| Q6 | 0.927 | | | | | | 0.43 (1.03) | 0.413 | 0.860 |
| Q7 | 0.943 | | | | | | 0.43 (1.07) | 0.419 | 0.860 |
| Q8 | 0.898 | | | | | | 0.68 (1.77) | 0.270 | 0.869 |
| Q19 | | 0.805 | | | | | 2.64 (1.53) | 0.519 | 0.856 |
| Q20 | | 0.668 | | | | | 1.88 (1.09) | 0.566 | 0.856 |
| Q21 | | 0.751 | | | | | 2.33 (1.46) | 0.516 | 0.856 |
| Q22 | | 0.780 | | | | | 2.18 (1.35) | 0.511 | 0.867 |
| Q23 | | 0.832 | | | | | 2.55 (1.50) | 0.430 | 0.860 |
| Q15 | | | 0.714 | | | | 2.21 (1.29) | 0.523 | 0.856 |
| Q16 | | | 0.870 | | | | 2.04 (1.25) | 0.469 | 0.858 |
| Q17 | | | 0.868 | | | | 1.84 (1.22) | 0.563 | 0.855 |
| Q18 | | | 0.805 | | | | 2.09 (1.39) | 0.655 | 0.851 |
| Q10 | | | | 0.914 | | | 0.71 (1.30) | 0.423 | 0.860 |
| Q11 | | | | 0.948 | | | 0.63 (1.17) | 0.471 | 0.858 |
| Q12 | | | | 0.867 | | | 0.84 (1.62) | 0.489 | 0.858 |
| Q13 | | | | | 0.958 | | 0.76 (1.21) | 0.277 | 0.865 |

| Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Mean (sd) | Corrected item-total correlations | Cronbach's α if item deleted |
|---|---|---|---|---|---|---|---|---|---|
| Q14 | | | | | 0.940 | | 0.76 (1.20) | 0.315 | 0.863 |
| Q1 | | | | | | 0.847 | 2.75 (1.08) | 0.545 | 0.856 |
| Q2 | | | | | | 0.760 | 2.69 (1.11) | 0.420 | 0.860 |
| Q26 | | | | | | 0.567 | 2.09 (1.00) | 0.360 | 0.862 |

# Exploratory Factor Analysis

We ran an EFA to evaluate the construct validity of Acro-TSQ. KMO was .764, which confirmed the sampling adequacy. Barlett's sphericity test was significant, indicating that there is no redundancy among variables and the data is suitable for factor analysis. ($\chi 2 = 1989{,}629$, df = 210, $p < 0.001$).

EFA with forced six-factor extraction explained 77,2% of the total variance. Factor 1 reflected TC; factor 2 ER; factor 3 SI; factor 4 GII; factor 5 ISI; and factor 6 TS. All of the items were loaded on the factors as they were in the original scale except for item number 18 (Upset because dependent on others). However, we did not delete the item from the scale as it is still relevant to the factor that loaded on, which is an emotional reaction. There were no cross-loaded factors in the study, and all factor loadings were above 0.45. Almost all of the loadings were above .70.

# Confirmatory Factor Analysis

We ran a CFA to assess the structure validity of Acro-TSQ. The first CFA model with a six-factor structure. In this model, some fit indices were below acceptable values. Thus, we used modification indices to improve the fit. Given that factor loadings in Acro-TSQ were higher than 0.40, we decided to keep all of the items in the scale. The modification indices indicated that there were high correlations of error covariances between 5 and 8, between 6 and 8, and between 2 and 26. We applied these index measures and ran another CFA model by correlating these error terms. The modification indices improved the model's goodness of fit although some of the fit indices did not improve (Fig. 1).

# Reliability Analysis

Cronbach's alpha of the Turkish version of the Acro-TSQ was 0.87. For the internal consistency reliability of each subscale, Cronbach's alpha estimates were measured as 0.85 for SI, 0.87 for TC, 0.89 for ISI, 0.90 for GII, 0.71 for TS, and 0.90 for ER. All of the factors appeared to have good levels of internal consistency.

# Patient-reported outcome

Items other than scale scoring in the Acro-TSQ scale were analyzed. According to this; approximately 1 in 5 patients reported experiencing symptoms related to acromegaly despite treatment within 4 weeks of the last injection. Within 4 weeks of SSA injection, 33.1% of patients reported that they experienced treatment-related gastrointestinal side effects such as abdominal pain, diarrhea, constipation, flatulence, reflux, nausea, or vomiting for at least one day. After SSA treatment, 66.9% of the patients stated that they did not experience any side effects related to the injection site. After SSA treatment, 12.5% of the patients reported that side effects related to the injection site limited their daily activities. All patient-reported outcome data is shown in table 3.

Tablo 3. Patient reported outcome data from acromegaly patients treated with injectable SSAs

| | n | % |
|---|---|---|
| Have you experienced any symptoms of acromegaly in the last 4 weeks despite SSA treatment? | | |
| Yes | 27 | 19.9 |
| No | 109 | 80.1 |
| How many days after SSA did you experience treatment-related gastrointestinal side effects? | | |
| 0 | 95 | 66.9 |
| 1 | 4 | 2.9 |
| 2 | 11 | 8.1 |
| 3 | 8 | 5.9 |
| 4 | 6 | 4.4 |
| 5 | 1 | 0.7 |
| 6 | 1 | 0.7 |
| 7 | 8 | 5.9 |
| 8 | 1 | 0.7 |
| 9 | 1 | 0.7 |
| How much did side effects at the injection site affect your daily life (including leisure activities and work) after SSA? | | |
| No side effects were experienced | 91 | 66.9 |
| Not at all | 9 | 6.6 |
| A little bit | 19 | 14.0 |
| Somewhat | 11 | 8.1 |
| Quite a bit | 6 | 4.4 |
| Very much | 0 | 0.0 |

# Discussion

Acromegaly symptoms, treatment modality, and treatment-related adverse effects can negatively affect patients' quality of life. The Turkish validity and reliability study of the Acro-TSQ, which consists of six subscales and 25 items that can evaluate these effects in a multidimensional and subjective manner, has shown that the questionnaire can be used in the Turkish population in terms of language, construct validity, and reliability.

An exploratory and confirmatory factor analysis evaluates the appropriateness of a scale in terms of construct validity. Several factors need to be carefully considered in the evaluation and need exploratory factor analysis. One method used in factor identification is the method defined by Kaiser, which states that eigenvalues greater than ‘1’ represent a factor [11]. The ratio of variance explained in multi-factor scales should be at least 50% for a statistically valid exploratory factor analysis [12, 13]. The exploratory factor analysis conducted in our study revealed that the Acro-TSQ showed a structure appropriate to the original scale, and the scale items had sufficient validity and were sufficiently related to the scale.

CFA confirmed that the scale conformed to the original structure. We preferred not to permanently remove these items from the scale, even though the factor loadings of some items in the scale were less than satisfactory and fell into several sub-factors. The main factor here is that the CFI value is above the acceptable fit value even without removing the items. In addition, other CFA results also support that this scale has robust validity and reliability. In our study, question 18, which was classified under the 'Treatment Convenience' subscale in the original questionnaire, was downgraded to the 'Emotional Reaction' subscale in this study. The difference here may be related to cultural perceptions and emotional bonding within the family.

Internal consistency is a measure of how closely and similarly items aiming to measure the same construct produce similar results. The higher the Cronbach Alpha coefficient of a scale, the more consistent the items that make up the scale are assumed to be with each other. In the literature, it is reported that a Cronbach's alpha coefficient between 0.60–0.80 indicates that the scale is reliable, and $\geq 0.80$ indicates that the scale is highly reliable [14, 15]. The Cronbach alpha coefficient of Acro-TSQ confirms that the Turkish validity and reliability of the scale are quite high.

Despite achieving biochemical control with surgical and medical treatment, some patients may report worsening acromegaly symptoms towards the end of the injection interval, or symptoms associated with injection therapy and related side effects, which may negatively affect the person's quality of life [16]. Therefore, measuring patient-reported outcomes is recommended in addition to biochemical assessment in clinical practice to capture the patients' perspective. In a meta-analysis of 53 studies, 14 different patient-reported outcome measures were used to assess the quality of life of acromegaly patients. However, only one of these, the Acromegaly Quality of Life Questionnaire (AcroQoL) has been validated in patients with acromegaly [17]. Recently, the Acromegaly Disease Activity Tool (ACRODAT®) [18] and SAGIT® [19] have been developed for use in patients with acromegaly. However, while these tools aid decision-making in clinical practice, they fail to address patient-reported symptoms of acromegaly and the treatment's efficacy or potential side effects. The Acro-TSQ is a tool that comprehensively addresses the efficacy of treatment and possible side effects and has been developed and validated in a way that acromegaly patients can self-administer [8].

The Turkish validation and reliability of the Acro-TSQ scale, which has proven efficacy in patients with acromegaly and is based on direct patient-reported outcomes, for use in the Turkish population are one of the main objectives of this study. With a prevalence of 2.8–13.7 cases/100000 [20] and serious mortality and morbidity, the importance and awareness of patient-reported outcomes in the management of a

disease with an increasing prevalence of 2.8–13.7 cases/100000 and serious mortality and morbidity, these scales should be used more in patients in the Turkish population.

In a multi-center study using the Acro-TSQ, 67% of patients reported experiencing symptoms of acromegaly after the last injection. In this study, 92% of patients reported that their symptoms affected their daily life, 84% of their leisure time activities, and 87% of their work activities [21]. In another study of 195 patients, 52% of patients reported that their acromegaly symptoms worsened towards the end of the dosing interval and 62% reported that these symptoms affected their daily lives [22]. The reason for this lower rate in our study may be related to the high rate of disease control, cultural differences, and living conditions.

In general, SSAs are safe and well-tolerated medicines. The most commonly reported side effects of SSAs are gastrointestinal (GI) symptoms such as nausea, diarrhea, gas, and cramps, which occur in approximately 30% of patients and are usually mild in severity and transient [23]. In the study by Fleseriu et al., 74% of patients had GI side effects after SSA injections and these effects were observed up to day 56 (mean 8 days). GI side effects affected daily life in 65% of patients, leisure time activities in 67%, and work activities in 62% [21]. In another long-term follow-up study, only 8% of patients complained of transient gastrointestinal side effects that did not require discontinuation of treatment [24]. Differences in gastrointestinal hormonal responses due to ethnic differences or changes in the microbiota of gut may underlie these differences in the literature.

Potential side effects of SSAs include pain, lumps/nodules, itching, and bruising at the injection site. The most commonly reported side effect after injection in a series of 195 patients was pain at 70%. Other injection site-related side effects reported included nodules (38%), swelling (28%), bruising (16%), scarring (8%), and inflammation (7%) [22]. Another study reported side effects such as pain during injection (83%), nodules (63%), swelling (47%), bruising (45%), and scar tissue/skin stiffness (42%). When assessed with the Acro-TSQ, 74% of patients reported being bothered by injection site reactions during the first few days [25]. In the study by Fleseriu et al. 77% of patients reported side effects related to the injection site [21]. Of these patients assessed with the Acro-TSQ, 67% were bothered by these side effects in the first few days and 57% reported that their work and activities of daily living were affected. The reason why injection site-related side effects were lower in our study may be that these effects were not questioned separately. However, the patient's level of discomfort from these side effects was higher than in the literature. These differences may also be related to the fact that the studies were conducted in different ethnic communities and the roles of individuals in social life.

# Limitations

This study has several limitations. First, since acromegaly is a rare disease closely associated with comorbidities, it was not possible to exclude patients with comorbidities. Second, since the scale involves retrospective questioning, patients may have some recall difficulties. Lastly, our study was unable to confirm the validity of the Turkish Acro-TSQ scale as we did not have other scales for treatment satisfaction in our dataset. We recommend future research to test the relationship between the Turkish Acro-TSQ and other related factors (e.g., anxiety, depression, and life quality).

# Conclusion

This study proved that the Turkish form of Acro-TSQ developed by Fleseriu [8] is a valid and reliable scale. This scale is an effective tool for detecting the ongoing disease burden, treatment-related side effects, and impact on daily living and work activities, as reported directly by the patient, even if biochemical control is achieved with SSA. These results emphasize the importance of collecting and monitoring patient-reported outcomes in clinical management to improve the quality of life of acromegaly patients.

# Declarations

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**Ethical approval:** Ethical approval for this study was obtained from the Local Ethics Committee of Kocaeli University Faculty of Medicine with number 2021/133.

**Informed consent:** Written informed consent was obtained from all patients before the study.

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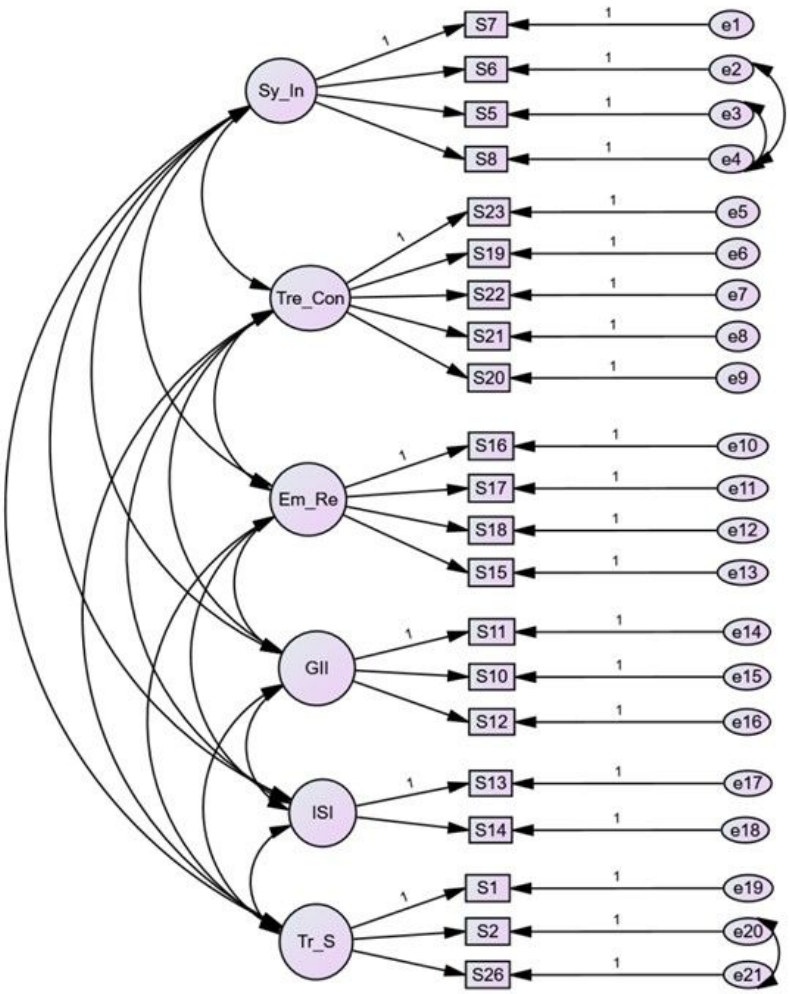
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# Figures




| | |
|---|---|
| Model ChiSquare ($\chi^2$) | 281,391 (p=,000) |
| Chi-Square Goodness ($\chi^2$/df) | 1,646 |
| Root Mean Square Error of Approximation (RMSEA) | 0.069 |
| Root Mean Square Residuals (RMR) | 0.105 |
| Normed Fit Index (NFI) | 0.889 |
| Comparative Fit Index (CFI) | 0.953 |
| Goodness of Fit Index (GFI) | 0.830 |
| Adjusted Goodness of Fit Index (AGFI) | 0.770 |
| Tucker-Lewis index (TLI) | 0.942 |

**Figure 1**

Well-fit model path diagram after confirmatory factor analysis.

Sy_In: Symptom Interference, Tre_Con: Treatment Convenience, ISI: Injection Site Interference, GII: Gastrointestinal Interference, Tre_S: Treatment Satisfaction, Em_Re: Emotional Reaction

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