

# Grogan Patient Satisfaction Questionnaire: Cultural Adaptation and Psychometric Properties

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**【Abstract】** Objective: To translate, culturally adapt, and validate the Chinese version of the Grogan Patient Satisfaction Questionnaire(GPSQ-CV). **Methods:** The GPSQ-CV was developed through a standardized forward-backward translation and expert review. Reliability and validity of the GPSQ-CV were examined in a Chinese sample of 153 patients from four general hospitals in Jiangsu province. **Results:** 153 inpatients completed the GPSQ, and 31 took part in the re-test. The Chinese version of the GPSQ demonstrated high internal consistency(Cronbach's  $\alpha=0.94$ ) and test-retest stability(Intra-class Correlation Coefficients=0.95). Confirmatory factor analysis showed that the GPSQ-CV fit three-factor model, namely Doctor-patient relationship, Medical services, and Non-medical services. **Conclusion:** The GPSQ-CV exhibited good psychometric properties and Cross-Cultural Adaptation.

**【Key words】** Mental test; Patient satisfaction; Reliability; Construct validity

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## Grogan 患者满意度问卷中文版:跨文化适宜性和心理测量学特性

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**【摘要】** 目的:将Grogan患者满意度问卷翻译成中文,并进行跨文化调适和信效度验证。方法:经标准化翻译-回译和专家审改程序形成Grogan患者满意度问卷中文版(GPSQ-CV),在江苏省四家综合医院抽取153名住院患者验证GPSQ-CV的信度和效度。结果:153名住院患者完成GPSQ-CV,其中31名接受重测;GPSQ-CV具有较高的内部一致性(Cronbach's  $\alpha=0.94$ )和重测稳定性(重测相关系数=0.95);验证性因素分析显示GPSQ-CV符合三因素模型,即医患关系、医疗服务和非医疗服务。结论:Grogan患者满意度问卷中文版具有较好的心理测量学特性和跨文化适宜性。

**【关键词】** 心理测验; 患者满意度; 信度; 结构效度

## 1 Introduction

Patient satisfaction is considered to be a direct indicator of medical performance and improvement of medical quality in health care<sup>[1]</sup>. The satisfaction information may reflect a series of factors such as personal values, medical expectations, doctor-patient communication and the services provided and care received<sup>[2, 3]</sup>. And it may be used to choose among alternative methods of providing health care<sup>[4]</sup>. The previous study showed that the satisfied patients have higher treatment adherence, probably because they are more likely to believe that treatment will be effective<sup>[5]</sup>. Over the past years, several questionnaires have been developed for patient satisfaction assessment<sup>[6]</sup>, out of them, the

Grogan Patient Satisfaction Questionnaire(GPSQ) is a better instrument, but there is lack of reliability and validity indicators in China.

The GPSQ, which consists of 40 items, was developed by Grogan and Conner in 1995. The developers defined their domains based on factor analysis, which indicated 5 subscales: Doctors(Items 1-20), Access(Items 21-28), Nurses(Items 29-32), Appointments(Items 33-36), and Facilities(Items 37-40). The responses are assessed by a 5-Likert scale, in which the low score indicated high satisfaction. Negative-worded questions were reverse scored. This European-English version of the GPSQ, validated in British, was published in 2000<sup>[7]</sup>. The 5-factor structure of the questionnaire was also confirmed and the findings(reliability and validity) support that the scale can be an effective

tool for assessing patient satisfaction with medical service outcomes to help general practices determine how well they are meeting the needs of their patients.

In recent years, the relationship between doctor and patient has been continually deteriorating in China<sup>[8]</sup>, and patient dissatisfaction for health care services is given close attention by society and medical staff, however, there are few reliable and valid patient satisfaction scales devised for use in China. The aim of this study was, therefore, to culturally adapt and validate the psychometric properties of the Chinese version of the Grogan Patient Satisfaction Questionnaire(GPSQ-CV).

## 2 Methods

### 2.1 Translation and cross-cultural adaptation of the GPSQ

The translation and cross-cultural adaptation followed the guidelines for the process of cross-cultural adaptation of self-report measures<sup>[9]</sup>.

**2.1.1 Forward translation** The GPSQ was first forward translated from English into Chinese with intent to retain the meaning of the questions in the original scale. Two translations were independently performed by translators(graduate student and Clinical psychological professor) whose first language is Chinese. Translators endeavored to keep the language compatible with a low-level of education and adhered to Chinese cultural context. The challenging terms were discussed by translators and a reconciled version was agreed on. None of the original items was omitted.

**2.1.2 Backward translation** Two college English teachers backward translated the initial version to ensure the fidelity of the Chinese version with the original version as far as possible. The translators in this process had not been involved in the forward translation and never been informed of the concepts being researched in order to avoid information bias.

**2.1.3 Expert reviews** Both the original scale and forward-backward translations were compared by clinical psychology experts to obtain the conceptual equivalent preliminary version. None of the items were omitted. Experts then divided these 40 items into several suitable domains on the basis of the item meaning and

Chinese medical and cultural context. Eight specific domains were identified: Diagnosis and treatment (items 3, 4, 8, 9, 19, 20, 26), Service attitude(items 12, 16, 17, 31), Service continuity(items 21, 22, 23, 28), Doctor-patient trust(items 1, 5, 6, 7, 32), Doctor-patient communication(items 2, 10, 11, 13, 14, 15, 18, 29, 30), Service accessibility(items 33-36), Guidance service (items 24, 25, 27.), and Hospital environment (items 37-40)(Table 1). These specific domains belong to three dimensions: Doctor-patient relationship(Doctor-patient trust and Doctor-patient communication), medical services(Diagnosis and treatment, Service attitude, and Service continuity) and Non-medical services (Service accessibility, Guidance service, Hospital environment).

**2.1.4 Test of the pre-final version** 50 patients were randomly selected to fulfill the preliminary version of the questionnaire so as to check the understanding and acceptability of items. All patients marked the items that were hard to understand or had doubtful meaning, and the results were re-evaluated by experts. None of the items were omitted. At the end of this stage, a Chinese version, GPSQ-CV, was obtained and set for psychometric examining.

### 2.2 Participants

Adult inpatients(18 years or older) who have been admitted to hospital for more than 24 hr were invited in our sample<sup>[10]</sup>. Patients should be volunteered to participate in this study. In addition, inpatients with cognitive and psychiatric conditions were excluded according to the clinical documentation provided by a physician at the moment of admission. 159 patients from 4 general hospitals in Jiangsu Province participated in this study during May and June 2015. The mean age of the participants was 50.28(SD=17.19). The average education years was 13.34(SD=3.52) and 58.2% are female.

### 2.3 Procedures

The questionnaires were administered by research assistants to each subject in separate rooms, ensuring privacy and avoiding interaction effects. Items were presented to each participant in written form. Participants faithfully answered each question in writing, by seeing the questionnaire as an academic research without considering the results and current cultural influ-

ence. If a participant altered the response, he or she should note the change; if the participant found that it is difficult to choose any answer, he or she might not mark the box. The time needed to complete the questionnaire was recorded by the research assistant.

All participants provided the information of their

socio-demographic characteristics and completed the GPSQ-CV. They were informed of the research procedures, data collection and anonymization of all personal details and the results of this study would not affect their treatment.

Table 1 The domain and item of the GPSQ

Item	domain
1. 医师总是能让我安心(The doctor always puts me at ease)	trust
2. 医师总是给我机会谈论自己的问题(The doctor always gives me every chance to talk about all my problems)	Communication
3. 医师即便很忙,也会对我做适当的检查(Even when the doctor is busy I am examined properly)	Diagnosis-treatment
4. 医师总是非常仔细地给我做检查(The doctor is very careful to check everything when examining me)	Diagnosis-treatment
5. 医师非常善解人意(The doctor is very understanding)	trust
6. 医师看病总是很有耐心(The doctor is always interested)	trust
7. 医师真心关注我的病情(The doctor shows a genuine interest in my problems)	trust
8. 医师会做充分的检查,以找出问题的症结(The doctor does enough tests to find out what is wrong)	Diagnosis-treatment
9. 医师做的所有检查,都是为了明确诊断(The doctor does everything needed to arrive at a diagnosis)	Diagnosis-treatment
10. 治疗前,医师会清楚地解释病情(The doctor clearly explains what is wrong before giving any treatment)	Communication
11. 医师会详细解释疾病对未来健康的影响(The doctor fully explains how the illness will affect my future health)	Communication
12. 医师从来没有因忙碌而敷衍我(I do not feel rushed when I am with a doctor)	Attitudes
13. 医师经常询问疾病对我日常生活的影响(The doctor always asks about how my illness affects everyday life)	Communication
14. 有时我觉得没有从医师那里得到足够的信息(I sometimes feel I have not been given enough information by the doctor)	Communication
15. 我不敢与医师讨论我的病情(I do not feel confident discussing my problems with the doctor)	Communication
16. 有时医师使我觉得我在浪费他的时间(Sometimes the doctor makes me feel I am wasting his/her time)	Attitudes
17. 医师似乎想要尽快地摆脱我(The doctor seems to want to get rid of me as soon as possible)	Attitudes
18. 医师没有告诉我足够的治疗信息(The doctor does not tell me enough about the treatment)	Communication
19. 医师只给我做一些必须做的检查(The doctor knows when tests are necessary)	Diagnosis-treatment
20. 医师有时未完全了解我的病情(The doctor sometimes fails to appreciate how ill I am)	Diagnosis-treatment
21. 医师总是通过电话给我一些建议(The doctor is always available to give advice over the telephone)	Continuity
22. 我感到很容易通过电话得到医师的建议(It is easy to get advice over the telephone)	Continuity
23. 我感到很容易通过电话与医师取得联系(I feel it is easy to speak to my doctor by telephone)	Continuity
24. 我随时可以同接待人员说话(I can speak to a receptionist privately if I wish)	Guidance
25. 接待人员会问病人一些适当的问题(The receptionists ask patients the right questions)	Guidance
26. 发生紧急状况有良好的急救措施(The practice has good facilities for dealing with emergencies which occur when the surgery is closed)	Diagnosis-treatment
27. 接待人员会向我清楚地解释一些事情(The receptionists explain things clearly to me)	Guidance
28. 我对超时服务比较满意(I am satisfied with the out-of-hours service)	Continuity
29. 护士不能细心解释一些事情(The practice nurses do not take care to explain things carefully)	Communication
30. 护士不能耐心倾听患者的倾诉(The practice nurse does not always listen carefully when I talk about my problems)	Communication
31. 护士使我觉得我在浪费他的时间(The practice nurse makes me feel that I am wasting his/her time)	Attitudes
32. 护士总让人感到非常放心(he practice nurse is always very reassuring)	trust
33. 在方便时预约看病很容易(Getting an appointment at a convenient time is easy)	Accessibility
34. 在需要时可以随时预约(Appointments are easy to make whenever I need them)	Accessibility
35. 预约某位医师常常很困难(It is often difficult to get an appointment with a doctor)	Accessibility
36. 很容易看到我选择的医师(It is easy to see a doctor of my choice)	Accessibility
37. 候诊室很不舒服(The waiting room is uncomfortable)	Environment
38. 病房楼可能需要修缮(The surgery building could do with some improvements)	Environment
39. 候诊室椅位不舒服(The waiting room seats are uncomfortable)	Environment
40. 候诊室没有足够的椅位(There are not enough seats in the waiting room)	Environment

## 2.4 Statistical Analysis

All statistical analyses were performed using SPSS 19.0 and AMOS 22.0.

### 2.4.1 Acceptability We recorded the time needed

to accomplish the questionnaire and assessed the acceptability according to the proportion of missing responses.

### 2.4.2 Reliability The internal consistency was mea-

sured with Cronbach's alpha in an sample of 153 patients( $\alpha > 0.7$ =desirable reliability)<sup>[4]</sup>, which reflects the extent to which different items in a questionnaire measure different aspects of the same general construct. The test-retest reliability was evaluated with intra-class Correlation Coefficients(ICC) in a retest sample of 50 patients with interval of five days, which were used to evaluate the coherence of the test and the retest total scores( $ICC > 0.8$ =excellent reliability).

**2.4.3 Validity** Structural validity was assessed by confirmatory factor analysis(CFA) with the statistical program AMOS 22.0. Two competing models: Grogan's five-factor model(Doctors, Access, Nurses, Appointments and Facilities) and three-factor model(Doctor-patient relationship, Medical service and None-medical service) which proposed in the light of Chinese culture were tested for their fit to the present data. The following model fit indices were used: the minimum discrepancy divided by its degrees of freedom(CMIN/DF); the goodness-of-fit index(GFI); the normed fit index(NFI); the comparative fit index(CFI); the Tucker-Lewis Index(TLI); the incremental fit index(IFI); the relative fit index(RFI); the normed fit index(NFI); and the root mean square error of approximation(RMSEA).

### 3 Results

#### 3.1 Acceptability

Out of 159 patients, six patients(3.7%) were spoiled, 153 patients completed scale for analysis. Overall, the questionnaire was completed within 10 minutes. Means and standard deviations(SD) on each dimension of GPSQ-CV are given in Table 2. Participants' response in the GPSQ-CV was generally positive. Overall, there was greater variation in patient satisfaction with non-medical services than with any of the other aspects of the service.

#### 3.2 Reliability

Cronbach's alpha for the overall GPSQ-CV was 0.94 and those for the subscales ranged 0.84-0.89(Table 2). Intra-class correlation coefficient for the overall GPSQ-CV was 0.95 and those for the original dimensions ranged 0.92-0.98(Table 2), indicating good stability<sup>[11]</sup>.

#### 3.3 Construct validity

Compared with the 5-factor model, the 3-factor model has stronger model fit indices(Table 3, Figure 1), indicating that the 3-factor model fit the present data better than the 5-factor model did. Based on the results of model comparisons, the 3-factor CFA model was preferred for the further assessment of the psychometric properties of the GPSQ-CV.

Table 2 Mean, standard deviation, Cronbach's alpha and ICCs of the GPSQ-CV

GPSQ-CV	Mean(SD)	Cronbach's alpha	ICC
Doctor-patient relationship	1.78(0.67)	0.89	0.92
Medical service	2.03(0.62)	0.84	0.98
Non-medical services	2.13(0.74)	0.85	0.95
Overall satisfaction	1.97(0.60)	0.94	0.95

Table 3 Confirmatory factor analysis of two competing models of the GPSQ-CV

	CMIN/DF	GFI	CFI	TLI	IFI	RFI	NFI	RMSEA
5-factor model	2.447	0.817	0.899	0.874	0.901	0.804	0.843	0.098
3-factor model	2.727	0.954	0.971	0.933	0.972	0.898	0.956	0.107

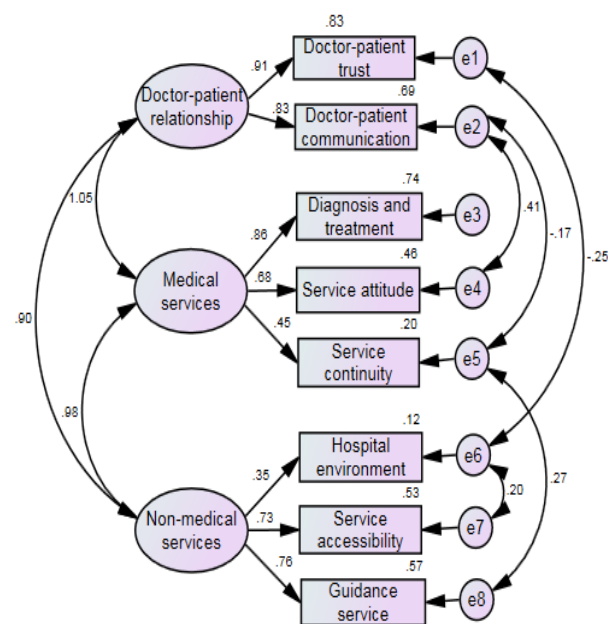


Figure 1 Standardized path coefficients for the 3-factor correlated model of the GPSQ-CV

### 4 Discussion

The transcultural acceptability, reliability, and validity of the GPSQ-CV were examined in a representative Chinese population. According to Baker<sup>[12]</sup>, an effective patient satisfaction questionnaire must satisfy 3 criteria: externally valid, internally reliable, and transferable. The GPSQ-CV achieved these standards when

we measured it on a random sample of inpatients from several different general hospitals in China.

Overall, the Chinese version of the GPSQ showed a satisfactory internal consistency on account of the high index of Cronbach's alpha for all subscales, which suggested that items in each subscale queried related questions. The 40 items of the GPSQ-CV covered important topics mentioned in the work on patients' satisfaction<sup>[13,14]</sup> and covered all points of view when patients were asked to list behaviors of the medical staff that they particularly appreciated and that they thought could be further improved. This indicates that the GPSQ-CV had satisfactory content validity. Subscale scores can be utilized to explore specific areas of service independently, and the global scale can be used to provide a global satisfaction score. It is probably that the subscale scores will provide more useful information when trying to collect the patients' perceptions of health care.

The three-factor structure of the questionnaire — where subscales specifically measure satisfaction with Doctor-patient relationship, Medical services, and Non-medical services — was confirmed, which differed from the results of the original version (five-factor structure). The results indicate that, in China, patient satisfaction is bind up with these three factors. For Boyer<sup>[15]</sup>, the most represented domain in patient satisfaction questionnaires was interpersonal care, which is in accordance with the study. Additionally quality of care and non-medical services are usually found in somatic care questionnaires<sup>[16]</sup>. The “Doctor-patient relationship” dimension emerged, with all items loaded highly on this factor, which indicates that patients do not distinguish different aspects of Interpersonal care(trust and Communication). Satisfaction with Medical services was also factored out as an individual scale, indicating that Diagnosis-Treatment, Attitudes and Continuity are compatible with each other. Furthermore, the “Non-medical services” was extracted from first-order factors, which suggested that first-order factors(Accessibility, Guidance, and Environment) are intimately associated.

This study describes the process of a translation, cross-culture adaptation, reliability and validity study

of the Chinese version of the Grogan Patient Satisfaction Questionnaire. The results revealed that the GPSQ-CV has good psychometric properties and can be widely used to assess inpatient satisfaction in different general hospitals, and helpful for care providers who seek to assess patient satisfaction and could ultimately promote the harmonious relationship between physicians and patients in China<sup>[17]</sup>. Further research could enlarge the sample size and examine other aspects of reliability and validity of the scale.

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析也表明问卷具有较好的外部效度。

从信度检验结果看,本问卷的内部一致性信度和重测信度均达到心理测量学要求,说明问卷具有较好的内部一致性和稳定性。

综上所述,本问卷有良好的信效度,可以作为青少年良心的测量工具。

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