Patient Preference and Adherence

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ORIGINAL RESEARCH

Psychometric Properties Assessment and Determinants of the Health Services OutPatient Experience (HSOPE) Among Chinese Outpatients: A Cross-Sectional Study

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Purpose: Dissatisfaction with outpatient experiences can cause patient disengagement, reduced adherence, and poorer outcomes. Due to the absence of an appropriate outpatient experience assessment tool in China, our study aims to translate the Health Services Outpatient Experience (HSOPE) scale into the Chinese context, evaluate its psychometric properties, and identify factors (eg, patient characteristics, interpersonal dynamics, and clinical specifics) that determine patient satisfaction and healthcare quality among Chinese outpatients.

Patients and Methods: Our study consisted of two phases: translation of the HSOPE scale and psychometric validation and analysis. The scale was translated into Chinese using both forward and backward translation methods. A cross-sectional study was then conducted among outpatients from a general hospital in China from October 2023 to April 2024. We collected data from 556 participants, and the total sample was randomly split for validation: one subset for exploratory factor analysis (EFA) and another for confirmatory factor analysis (CFA). We assessed the scale's reliability and validity through measures of internal consistency, item analysis, EFA, and CFA, and used linear regression to identify determinants of outpatient experiences.

Results: The 10-item Chinese HSOPE scale demonstrated high reliability (Cronbach's alpha: 0.93; Guttman split-half: 0.92) in the full sample (n = 556). EFA (n = 385) extracted one factor, explaining 56.01% of the variance, and CFA (n = 171) confirmed a good model fit ($\chi^2/df = 1.69$, $RMSEA = 0.06$). Older age and being single were associated with positive experiences. Negative experiences were linked to visiting gynecology/obstetrics or pediatrics, poor doctor communication, lack of pre-test information, inadequate medication instructions, perceived privacy violations, insufficient doctor thoroughness, and long wait times (1–2 hours or > 2 hours) (all $P < 0.05$).

Conclusion: The 10-item Chinese HSOPE scale is a reliable and valid tool for assessing outpatient experiences in China. The identified factors, such as communication, privacy protection, and wait times, can guide targeted improvements to enhance patient satisfaction and healthcare outcomes.

Keywords: psychometrics, reproducibility of results, patient satisfaction, ambulatory care, validation study, outpatient experiences, associated factors

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Introduction

Patients' outpatient experiences encompass all interactions with healthcare services during non-hospital stays. Despite efforts, negative experiences persist due to resource imbalance and high demand. For instance, studies show over 30% of patients are dissatisfied with provider communication,[1,2] and over 25% report wait times exceeding 90 minutes.[3,4] Improving outpatient experiences is crucial for enhancing patient satisfaction,[5,6] fostering doctor-patient harmony,[7] and elevating healthcare service levels.[8] Moreover, some studies indicate that addressing negative experiences can improve health outcomes, including greater treatment adherence, reduced symptom burden or relapse, and better quality of life.[9,10] To measure and improve care, it is important to distinguish between "patient satisfaction" and "patient experience", which are related but distinct constructs. The former reflects whether expectations were met, whereas the latter records what actually occurred across interactions shaped by organizational culture.[11,12] This distinction rests on Patient-Centered Care (PCC),[13] which shifts from a disease focused biomedical model to care that integrates patients' perspectives, values, and preferences into shared decisions. Therefore, understanding outpatients' experiences is essential for improving care quality.

There are several available outpatient experiences assessment scales, but most focus on specific aspects of healthcare delivery, such as clinic visits and communication, without directly capturing patient-centeredness. For example, the Outpatient Experiences Questionnaire[14] evaluates clinic visits, communication, and organization with 26 items, while the Hospital Consumer Assessment of Healthcare Providers and Systems[15] focuses on inpatient service quality with 27 items. These scales do not comprehensively assess patient-centeredness, which involves understanding the patient's perspective and including them in decision-making,[16] and their length may increase respondent burden. In contrast, the 10-item Health Services Outpatient Experience (HSOPE)[17] is grounded in a model that conceptualizes patient-centeredness as a single, global construct and assesses the patient's experience during the medical appointment. Within this unidimensional framework, communication, information sharing, involvement in decision-making, and interpersonal care are interlinked components of one construct rather than separate domains. Developed in Italy, HSOPE has been verified only in Italy to date and has not yet been evaluated in other countries. Grounded in the international patient-centered care literature, it provides a practical, low burden measure for busy clinics. However, no validated scale exists in China for assessing patient-centered outpatient experiences, hindering efforts to evaluate experience and improve services.

Except for the assessment of outpatient experiences, understanding its associated factors could help managers and health professionals implement tailored strategies. Previous studies have identified positive correlates (effective provider communication,[18] patient involvement in decision-making[5]) and negative correlates (long wait times,[19] inadequate resources) of experience. Across settings, uneven resource distribution leads to long waits in high income countries,[20] while specialist shortages exacerbate waiting in low- and middle-income regions.[21] In China, distinctive system features shape experience: a hierarchical structure with heavy reliance on tertiary hospitals, where 58.5% of patients seek care.[22] This concentration requires patients to move through multiple service points (registration, specialist consultations, diagnostic testing, pharmacy), often in overcrowded facilities that strain care. Moreover, with only two physicians per 1,000 people and resources concentrated in urban areas,[23] patients frequently face waits exceeding 3 hours[24] and brief consultations. Cultural norms also matter: Confucian traditions favor clinician authority and a paternalistic model, discouraging questioning and shared decision making, unlike Western models that emphasize patient autonomy.[25] This complexity indicates that multiple associated factors remained under explored. Therefore, it is vital to explore a broader range of factors influencing HSOPE in China to understand their impact on outpatient satisfaction and health outcomes.

Therefore, we aim to translate the HSOPE scale into Chinese, evaluate its psychometric properties, and identify multi-level determinants (eg, patient characteristics, interpersonal dynamics, and clinical specifics) of patient satisfaction and perceived healthcare quality among Chinese outpatients. We expect that the Chinese version of the HSOPE scale will demonstrate robust psychometric properties and multiple factors will influence outpatient experiences. These findings are expected to inform strategies for improving patient-centered care and guide policies to enhance outpatient service quality in China.

Material and Methods

Study Design

We conducted a cross-sectional study and reported it in accordance with the Equator Network STROBE guideline.[26]

Setting

This study was conducted at the First Affiliated Hospital of Guangzhou Medical University, a tertiary general hospital in Guangzhou, China, with 2,850 inpatient beds. The hospital's defining feature is its national leadership in respiratory medicine, housing the National Center for Respiratory Medicine. Outpatient services include internal medicine, general surgery, obstetrics and gynecology, pediatrics, and respiratory specialty clinics, covering a wide spectrum of common and complex diseases. The outpatient care is delivered by physicians, nurses, and allied health professionals. The hospital serves a predominantly urban population in Guangzhou, with referrals from surrounding urban areas, leading to high daily outpatient volumes (averaging 8,000–10,000 visits) and typical wait times of 2–3 hours for specialty consultations. Using a convenience sampling, we recruited all outpatients who had completed their clinic visit between October 2023 and April 2024; emergency and inpatient cases were excluded. Eligible participants were then given a Quick Response (QR) code for complement the online survey.

Translation of Chinese Version of HSOPE

After obtaining authorization from the original scale's author, we employed the Brislin translation model[27] to guide the translation process. Step A, forward translation: two bilingual researchers (one a nursing professional with a master's degree in Nursing for subject-matter expertise, and one a language expert with a master's degree in English for linguistic accuracy) independently translated the instrument into Chinese. Step B, reconciliation: the two forward translators and a senior professor arbiter compared versions. Discrepancies, identified via line-by-line comparison, were resolved by consensus, prioritizing conceptual accuracy and natural language. All items were easily agreed upon, suggesting ready adaptation to the Chinese context. Step C, back translation: a blinded back-translator, fluent in both languages and holding a master's in English, translated the synthesized version into English without having seen the original instrument. Step D, semantic and cultural equivalence: the team compared the back translation with the source instrument and refined wording using four criteria: namely conceptual meaning, idiomatic usage, experiential relevance, and technical equivalence, to ensure cultural appropriateness for the target population. This rigorous translation and review process served as a qualitative assessment of content validity, ensuring that all items were relevant, clear, and representative of the target construct within the Chinese cultural and healthcare context. Step E, expert committee or focus group, and Step F, pilot testing: these steps were not conducted due to resource constraints.

Participants' Eligibility and Sample Size Calculation

Eligible respondents were adult outpatients (≥18 years) attending physician-led medical appointments in outpatient clinics, as well as guardians of pediatric patients (under 18 years), with guardians completing the survey for pediatric visits. Inclusion criteria were the ability to read Chinese, use a smartphone, and have normal or corrected-to-normal vision and hearing sufficient to complete the survey. We did not restrict participation based on education level or type of visit. Exclusion criteria included cognitive impairment, emergency, critical, deteriorating, or trauma presentations that prevented independent completion; and cases receiving highly specialized outpatient treatments (eg, dialysis) or in terminal stages that precluded reliable reporting. Trained staff approached patients in outpatient waiting areas after their visit during morning and afternoon clinic sessions throughout the study period. No sampling by shift was performed. Translator selection required proficient bilingual translators in English and Chinese for forward and backward translation, with at least one translator in each pair from the health sciences to ensure conceptual accuracy, and an arbiter with a relevant doctoral degree and experience in instrument development or cross-cultural validation.

We calculated sample sizes for exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and linear regression analysis separately. For EFA, Sakaluk JK[28] recommends a sample of at least 200 to 300 participants. For CFA, the number of items per factor was considered, with Marsh[29] suggesting a minimum sample of 100 participants when

there are 4 items per factor. The total sample size for validation, combining the EFA and CFA samples, was estimated to be 300–400 participants. For linear regression analysis, the rule of thumb[28] suggests 10–20 observations per independent variable. Given that the Chinese HSOPE scale has 14 independent variables, a sample size of 140–280 participants was required. Since the combined EFA and CFA sample size was larger, we determined that 400 participants would be sufficient. Ultimately, we recruited 556 patients, exceeding the required sample size.

Variables and Measurements

Demographics and Characteristics

The sociodemographic questionnaire was developed by the authors based on routine hospital registration items and prior outpatient survey literature. The primary outcome was outpatient experience, measured by the HSOPE total score. Explanatory variables included age, highest education level attained, residency status, marital status, department visited, type of visit, medical insurance type, monthly income, understanding of the doctor's communication, receipt of the doctor's pre-test information, receipt of medication instructions, perceived privacy protection, perceived doctor's thoroughness, and waiting time for medical services. We hypothesized that more positive experiences would be associated with older age, higher education, and better process-related factors, such as shorter wait times and clearer communication.

Health Services Out Patient Experience (HSOPE)

The HSOPE is a self-administered, unidimensional tool originally developed and validated in Italian outpatient settings to assess patient experiences during medical appointments.[17] The English version from the original validation study served as the source for our Chinese translation. The instrument comprises three sections: ten core items assessing patient-centeredness, one item on overall satisfaction, and a sociodemographic section. We used the core 10-item section, with items rated on a 5-point Likert scale (1 = "Never" to 5 = "Always"); total score ranges from 10 to 50, and higher scores indicating a more positive, patient-centered experience. In the original validation, the scale demonstrated excellent internal consistency (Cronbach's alpha = 0.95). EFA and CFA supported a unidimensional structure, with all items loading saliently (range: 0.74–0.88) on a single factor that explained 66.37% of the variance. The CFA indicated excellent model fit (Goodness-of-Fit index [*GFI*] = 0.99, Adjusted GFI [*AGFI*] = 0.99, Normed Fit index [*NFI*] = 0.99, Relative Fit index [*RFI*] = 0.99, root mean square residual = 0.02), and this factor structure was invariant across sex. The instrument measured global perceptions of care, encompassing dimensions of technical effectiveness, information quality, relational aspects with staff, and involvement in decision-making. The core items specifically evaluate interactions during the appointment, such as communication with staff, receipt of information, privacy respect, and involvement in treatment decisions. Although the scale is designed for self-administration by patients, it was distributed by nursing staff and completed by participants immediately after their physician-led medical consultations. To suit the local context, we collected sociodemographic information using a separate questionnaire while leaving the core ten items of the HSOPE unchanged.

Data Collection

Data were collected from October 2023 to April 2024 at a tertiary hospital outpatient clinic. Trained research staff approached eligible patients in waiting areas after their physician consultations. They used a standardized script to explain the objectives, confidentiality, and voluntary participation, then invited patients to participate. After obtaining electronic informed consent, participants accessed the questionnaire via a QR code and completed it on their own device in the waiting area or in a nearby quiet space; staff did not view responses. The survey was administered on the Sojump web platform (Changsha Ranxing Information Technology Co., Ltd., Changsha, China), which provided mandatory fields, basic logic checks, and time stamps; all items were required, ensuring no missing values and resulting in a 100% completion rate. To minimize bias from recall and interviewer influence, questionnaires were self-administered immediately post-visit. Privacy and data security were ensured by de-identifying responses with a unique study ID (no names or initials collected), restricting access to authorized team members, and storing data in password-protected files. The study was approved by the hospital's ethics committee, and permission was obtained from the outpatient clinics to recruit on site.

Statistical Methods

Data were transferred from the SoJump platform to a master Excel (Microsoft Excel 2019) database for data quality control. Then, descriptive statistics were used to summarize participant demographics and characteristics, as well as HSOPE scores. Specifically, continuous variables were examined for normality before being described using means and standard deviations. Categorical variables were reported as frequencies and percentages. To assess the psychometric properties of the HSOPE, EFA with parallel analysis and CFA were performed. To explore the associated factors influencing HSOPE scores, independent *t*-tests or one-way analyses of variance (ANOVA) were used to compare differences in HSOPE scores across demographic and characteristic groups. Linear regression analysis was conducted to identify significant predictors of outpatient satisfaction. The regression model was assessed for multicollinearity using variance inflation factors (*VIF*). Statistical significance was established at two-sided *P*-values of <0.05. Statistical analyses were conducted using SPSS version 23 (IBM Corp.), AMOS version 26 (IBM Corp.), and R version 4.1.1 (R Core Team, 2021).

During the translation phase, semantic equivalence was assessed qualitatively by the research team using four criteria: conceptual meaning, idiomatic usage, experiential relevance, and technical equivalence, based on the Brislin model. Consensus was reached to ensure the translation accurately reflected the original scale's meaning while being culturally relevant.

Internal Consistency Reliability Assessment and Item Analysis

To test the scale's reliability, internal consistency was evaluated using Cronbach's alpha and the Guttman split-half coefficient, with values greater than 0.8 and 0.7, respectively, indicating high reliability. Additionally, item analysis was performed to evaluate the performance of each individual item. This analysis included calculating the item-total correlation and the Cronbach's alpha coefficient if the item was deleted for each of the 10 items.

EFA with Parallel Analysis

Data from 70% of randomly selected respondents were used for EFA to examine the scale's internal structure. Before conducting EFA, Kaiser-Meyer-Olkin (*KMO*) and Bartlett's test of sphericity were used to determine the sampling adequacy and suitability for factor analysis. Items were considered suitable for analysis if $KMO > 0.5$ and Bartlett's test value <0.05. Parallel analysis was then conducted to determine the number of factors to retain by comparing the eigenvalues from the observed data with those averaged across multiple random datasets of the same dimensions. Common factors with eigenvalues >1 were extracted using principal axis factoring, and factor rotation was performed using the promax oblique rotation method.

CFA

Data from 30% of respondents were used for CFA. The model's fit indicators include chi-square value (χ^2), relative chi-square value (χ^2/df), root mean square error of approximation (*RMSEA), RFI, NFI*, value-added fitting index (*IFI*), comparative fit index (*CFI*), and Tucker-Lewis index (*TLI*). The model was considered acceptable if it met the following criteria: $RMSEA < 0.08$, and *CFI, RFI, NFI*, and, if applicable, *AGFI* were all ≥0.9.[30] Convergent validity and internal consistency were assessed using the average variance extracted (*AVE*) and composite reliability (*CR*), respectively. An AVE > 0.5 and CR > 0.7 indicate excellent internal consistency. The initial one-factor model was tested without any post-hoc modifications (eg, correlating error terms). The good fit of this initial model to the data supports its factorial validity.

Identification of Determinants with HSOPE

To identify determinants with HSOPE in Chinese outpatient settings, we compared the differences in HSOPE score across demographic and characteristic groups using independent t-tests or ANOVA, as appropriate. Linear regression analyses were subsequently performed to determine the determinants with outpatient experiences. Multicollinearity among predictors was assessed using a $VIF \geq 2.5$.[31]

Ethical Considerations

The study was approved by the Ethics Committee of the First Hospital of Guangzhou Medical University (No. ES-2024-K128-01) and conducted in accordance with the Declaration of Helsinki. Informed consent was obtained from all participants.

Results

Participants' Demographics and Characteristics

Among 556 participants, ages ranged from 11 to 84, with an average age of 45.37 years (SD = 14.74). The majority were college graduates or higher (60.61%), married (84.71%), non-local residents (66.37%), had medical insurance (61.15%), and were visiting internal medicine department (58.63%). Table 1 lists participants' detailed characteristics regarding type of visit, monthly income, understanding of doctor's communication, received doctor's pre-test Information, received medication instructions, perceived privacy protection, perceived doctor's thoroughness, and waiting time for medical services.

Table 1 Participants' Demographics and Characteristics and Group-Comparisons on Health Services Outpatient Experience (HSOPE) Score (n = 556)

Variables	N (%)	Mean ± SD	*F*/*t*	*P*
Age (years)				
< 35	166 (29.86)	40.99 ± 9.46	14.72	< 0.001
36-60	270 (48.56)	41.61 ± 9.18		
> 60	120 (21.58)	46.19 ± 6.04		
Highest education level attained				
Below college degree	219 (39.39)	43.47 ± 8.56	2.61	0.051
College degree	130 (23.38)	41.21 ± 9.05		
Bachelor's degree	145 (26.08)	42.63 ± 8.96		
Bachelor degree above	62 (11.15)	40.73 ± 9.30		
Residency status				
Local	187 (33.63)	41.36 ± 9.07	−2.00	0.112
Non-local	369 (66.37)	42.95 ± 8.78		
Marital status				
Married	471 (84.71)	41.97 ± 9.04	−2.77	0.007
Single	85 (15.29)	44.86 ± 7.67		
Department visited				
Internal medicine department	326 (58.63)	42.95 ± 8.51	24.38	< 0.001
Surgery department	191 (34.35)	43.74 ± 8.48		
Gynecology and obstetrics department	18 (3.24)	30.72 ± 5.30		
Pediatric department	21 (3.78)	32.05 ± 7.61		
Type of visit				
Initial visit	253 (45.50)	42.62 ± 8.52	0.49	0.607
Follow-up visit	303 (54.50)	42.24 ± 9.22		
Medical insurance type				
Medical insurance	340 (61.15)	43.56 ± 8.12	3.86	< 0.001
Self-paying	216 (38.85)	40.61 ± 9.77		
Monthly income, CNY				
≤ 3000	130 (23.38)	42.33 ± 9.44	0.77	0.544
3000-6000	175 (31.47)	42.36 ± 8.64		
6000–9000	97 (17.45)	41.26 ± 9.21		
9000−12,000	69 (12.41)	43.32 ± 8.02		
≥ 12,000	85 (15.29)	43.24 ± 8.96		
Understanding of doctor's communication				
Fully understand	317 (57.01)	45.37 ± 7.72	61.35	< 0.001
Mostly understand	173 (31.12)	41.19 ± 8.35		
Partially understand	49 (8.81)	31.43 ± 6.26		
Barely understand	17 (3.06)	31.41 ± 4.05		
Received pre-test information				
Yes	500 (89.93)	43.67 ± 8.39	11.00	< 0.001
No	56 (10.07)	31.16 ± 4.26		

(*Continued*)

Table 1 (Continued).

Variables	N (%)	Mean ± SD	*F/t*	*P*
Received medication instructions				
Yes	485 (87.23)	43.90 ± 8.26	11.40	< 0.001
No	71 (12.77)	32.28 ± 6.14		
Perceived privacy protection				
Yes	486 (87.41)	44.00 ± 8.19	12.55	< 0.001
No	70 (12.59)	31.39 ± 5.01		
Perceived doctor's thoroughness				
Yes	503 (90.47)	43.55 ± 8.41	10.13	< 0.001
No	53 (9.53)	31.58 ± 5.62		
Waiting time for medical services				
Within 0.5 hours	181 (32.55)	43.99 ± 8.57	7.86	< 0.001
0.5 to 1 hour	211 (37.95)	43.09 ± 8.80		
1 to 2 hours	117 (21.04)	40.38 ± 9.13		
More than 2 hours	47 (8.45)	38.36 ± 8.13		

Abbreviations: CNY, Chinese Yuan; SD, standard deviation; F, F-statistic; t, t-statistic; *P*, two-sided *p* value.

Internal Consistency Reliability and Item Analysis

The Chinese HSOPE scale demonstrated excellent internal consistency, with a Cronbach's alpha of 0.93 and a Guttman split-half coefficient of 0.92. Item analysis further confirmed that all items contributed positively to the scale's reliability. The item-total correlations ranged from 0.64 to 0.84 (all exceeding the 0.40 criterion), and the Cronbach's alpha value would not increase beyond 0.93 if any item were deleted. High mean scores (4.11–4.39) across all items indicated generally positive patient experiences (Table 2).

EFA and Parallel Analysis for Construct Validation

For this analysis, 385 respondents participated. The *KMO* value was 0.904, and Bartlett's test of sphericity yielded 2482.87 ($P < 0.001$), indicating that the data were suitable for factor analysis. Principal component analysis identified one

Table 2 Item Analysis for the Chinese Health Services Outpatient Experience (HSOPE) Scale (n = 556)

Items	Mean (SD)	Item-Total Correlation	Cronbach's Alpha if Item Deleted
a1: Did you receive clear and comprehensible information from the staff when you asked questions?	4.26 ± 1.07	0.64	0.93
a2: Did you feel at ease in dealing with the staff?	4.16 ± 1.23	0.72	0.92
a3: Did you feel that your concerns were taken into account by the staff?	4.11 ± 1.25	0.78	0.92
a4: Were you informed by the staff about the outcome of the visit and the course of the health care pathway?	4.22 ± 1.13	0.76	0.92
a5: Were the staff competent during the outpatient visit?	4.27 ± 1.22	0.70	0.92
a6: Did you feel involved in decision making regarding treatment?	4.25 ± 1.07	0.65	0.93
a7: Were the staff courteous and helpful?	4.38 ± 1.10	0.69	0.92
a8: Where necessary, were you able to find a doctor who was willing to give you the information you needed?	4.21 ± 1.15	0.73	0.92
a9: Have you been informed of the methodological process of the diagnostic examination?	4.21 ± 1.12	0.84	0.92
a10: Did the staff respect your privacy needs during the visit?	4.39 ± 1.03	0.74	0.92

Abbreviation: SD, standard deviation.

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Table 3 Eigenvalues of Each Factor and Total Variance Explained (n = 385)

Scale Items	Factor Loadings
a1: Did you receive clear and comprehensible information from the staff when you asked questions?	0.65
a2: Did you feel at ease in dealing with the staff?	0.74
a3: Did you feel that your concerns were taken into account by the staff?	0.81
a4: Were you informed by the staff about the outcome of the visit and the course of the health care pathway?	0.75
a5: Were the staff competent during the outpatient visit?	0.77
a6: Did you feel involved in decision making regarding treatment?	0.64
a7: Were the staff courteous and helpful?	0.70
a8: Where necessary, were you able to find a doctor who was willing to give you the information you needed?	0.74
a9: Have you been informed of the methodological process of the diagnostic examination?	0.87
a10: Did the staff respect your privacy needs during the visit?	0.78
Eigenvalue	50.01
Cumulative variance contribution rate (%)	50.01

common factor with an eigenvalue greater than one, cumulatively explaining 50.01% of the variance (see Table 3). Parallel analysis supported the retention of this single factor, suggesting a plausible factor structure for the scale, which was further validated by CFA (see Figure 1).

CFA for Construct Validation

In the CFA, data from 171 respondents were used. The one-factor model incorporated 11 theoretically justified-correlated error terms to address semantic and contextual overlaps among specific items. For instance, e2 ↔ e5 reflected shared variance in perceptions of staff attitudes, and e3 ↔ e6 captured common elements of patient-centered communication. Other correlations were included due to similar wording or contextual overlap in item content. The model demonstrated a good fit (χ^2 = 37.17, χ^2/df = 1.69, *RMSEA* = 0.06, *NFI* = 0.94, *RFI* = 0.95, *IFI* = 0.99, *CFI* = 0.99, *TLI* = 0.98; path diagrams are shown in Figure 2), with all fit indices meeting the evaluation criteria. Additionally, the convergent validity of the scale was supported by an AVE of 0.58, and the CR of 0.93 indicated excellent internal consistency.

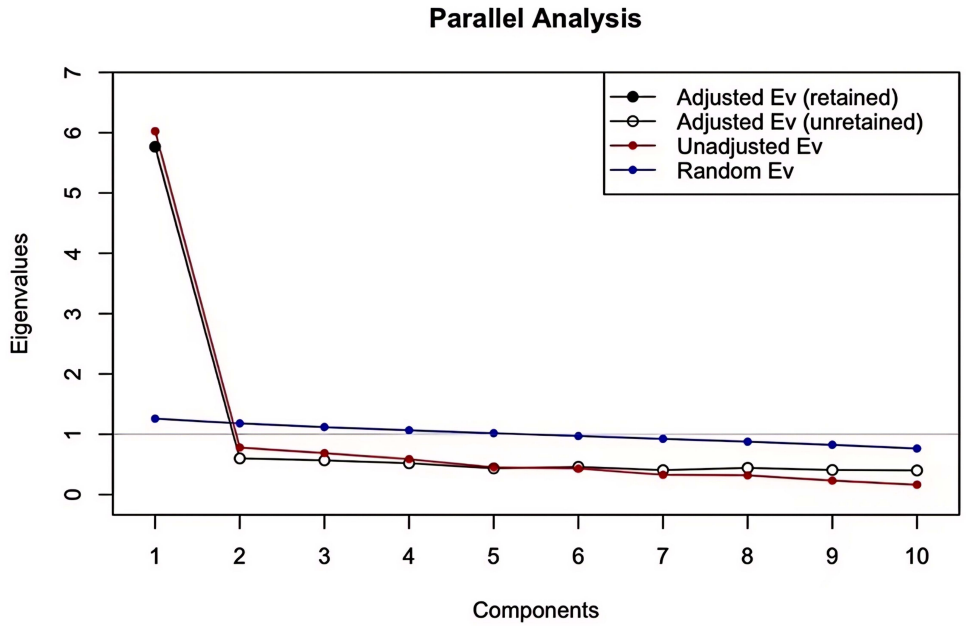

Figure 1 Parallel analysis for factor extraction (n = 385).

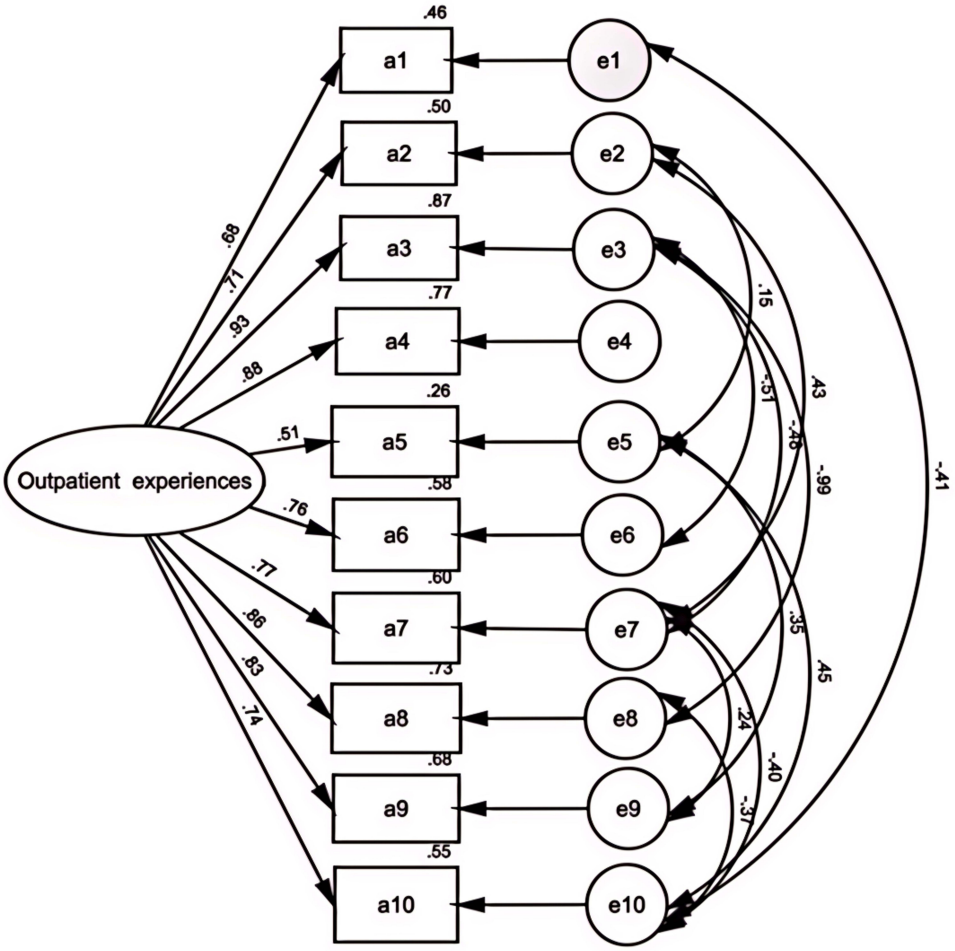

Figure 2 Path diagram and confirmatory factor analysis factor loads of outpatient experiences (n = 171). a1: Did you receive clear and comprehensible information from the staff when you asked questions? a2: Did you feel at ease in dealing with the staff? a3: Did you feel that your concerns were taken into account by the staff? a4: Were you informed by the staff about the outcome of the visit and the course of the health care pathway? a5: Were the staff competent during the outpatient visit? a6: Did you feel involved in decision making regarding treatment? a7: Were the staff courteous and helpful? a8: Where necessary, were you able to find a doctor who was willing to give you the information you needed? a9: Have you been informed of the methodological process of the diagnostic examination? a10: Did the staff respect your privacy needs during the visit? The e1 to e10 were residua resulting from the measurement errors for a1 to a10, respectively.

Difference in Outpatient Experiences by Participants' Characteristics

Significant differences in HOSPE scores were found by age, marital status, department visited, medical insurance type, understanding of doctor's communication, received pre-test information, received medication instructions, perceived privacy protection, perceived doctor's thoroughness, and waiting time for medical services. Specifically, participants over 60 years old scored higher than those under 60 ($F = 14.72$, $P < 0.001$). Patients who received pre-test information scored higher ($t = 11.00$, $P < 0.001$), as did those received medication instructions ($t = 11.40$, $P < 0.001$), and those who perceived privacy protection ($t = 12.55$, $P < 0.001$). Significantly higher scores were also observed among single participants ($t = -2.77$, $P = 0.007$), those visiting internal medicine ($F = 24.38$, $P < 0.001$), insured patients ($t = 3.86$, $P < 0.001$), and those waiting under 30 minutes ($F = 7.86$, $P < 0.001$). No significant differences were found for other subgroups (all $P > 0.05$) (see Table 1).

Linear Regression Analysis for Identifying Associated Factors

The *VIFs* for all predictor variables were below 2.5, ranging from 1.08 to 1.77, indicating variable independence and minimal impact on regression coefficient estimate. Patients who were older ($b = 0.06$, $P = 0.025$) or single ($b = 3.09$, $P = 0.001$) were likely to have positive outpatient experiences. Conversely, those who visited gynecology and obstetrics

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Table 4 Linear Regression Analyses of Patient Characteristics on Health Services Outpatient Experience (HSOPE) Score (n = 556)

Independent Variables	*b*	*SE*	*t*	*P*	*VIF*
Age	0.06	0.03	2.241	0.025	1.70
Highest education level attained (ref: below college degree)					
College degree	−0.55	0.84	−0.65	0.515	1.49
Bachelor degree	−0.40	0.84	−0.48	0.632	1.62
Bachelor degree or above	−0.11	1.10	−0.10	0.920	1.43
Residency status (ref: local)					
Non-local	0.22	0.65	0.34	0.734	1.11
Marital status (ref: married)					
Single	3.09	0.91	3.40	0.001	1.27
Department visited (ref: Internal medicine department)					
Surgery department	0.23	0.64	0.35	0.724	1.11
Gynecology and obstetrics department	−4.70	1.77	−2.66	0.008	1.16
Pediatric department	−4.00	1.64	−2.43	0.015	1.17
Type of visit (ref: initial visit)					
Follow-up visit	−0.69	0.61	−1.14	0.256	1.08
Medical insurance type (ref: medical insurance)					
Self-paying	−0.89	0.64	−1.40	0.163	1.16
Monthly income, CNY (ref: < 3000)					
3000–6000	−0.18	0.83	−0.22	0.827	1.75
6000–9000	−0.38	0.97	−0.39	0.698	1.62
9000–12,000	0.31	1.10	0.28	0.779	1.55
≥ 12,000	−0.65	1.03	−0.63	0.530	1.62
Understanding of doctor's communication	−2.84	0.44	−6.51	< 0.001	1.34
Received pre-test information (ref: yes)					
No	−2.71	1.23	−2.20	0.028	1.64
Received medication instructions (ref: yes)					
No	−3.05	1.12	−2.72	0.007	1.66
Perceived privacy protection (ref: yes)					
No	−4.01	1.16	−3.45	0.001	1.77
Perceived doctor's thoroughness (ref: yes)					
No	−3.18	1.18	−2.70	0.007	1.43
Waiting time for medical services (ref: within 0.5 hours)					
0.5 to 1 hour	−0.31	0.71	−0.44	0.663	1.41
1 to 2 hours	−2.37	0.84	−2.83	0.005	1.38
More than 2 hours	−2.94	1.16	−2.53	0.012	1.25

Abbreviations: Ref, reference category; CNY, Chinese Yuan; *b*, unstandardized regression coefficient; *SE*, standard error; *t*, t statistic; *P*, two-sided p value; *VIF*, variance inflation factor.

department ($b = -4.70$, $P = 0.008$), visited pediatric department ($b = -4.00$, $P = 0.015$), did not understand doctor's communication ($b = -2.84$, $P < 0.001$), did not receive pre-test information ($b = -2.71$, $P = 0.028$) or medication instructions ($b = -3.05$, $P = 0.007$), did not perceive privacy protection ($b = -4.01$, $P = 0.001$) or the doctor's thoroughness ($b = -3.18$, $P = 0.007$), experienced a 1–2 hour service wait ($b = -2.37$, $P = 0.005$) and a service wait >2 hours ($b = -2.94$, $P = 0.012$) were likely to have negative outpatient experiences. For other factors included in the model, the regression coefficients were non-significant (see Table 4).

Discussion

This study, for the first time, translates and validates the Chinese version of HSOPE scale as well as explores the associated factors of satisfactory outpatient experience among the Chinese population. Firstly, our findings confirm the reliability and validity of HSOPE for Chinese outpatients, supporting its use for assessing patient satisfaction and

healthcare quality. Additionally, two factors—being older and being single—were positively associated with outpatient satisfaction, suggesting greater reliance on healthcare among these groups. Tailoring services to meet their needs could enhance satisfaction. Conversely, seven factors, including visits to gynecology and pediatrics departments, understanding of doctor's communication, received pre-test information, received medication instructions, perceived privacy protection, perceived doctor's thoroughness, and waiting time for medical services, were negatively associated with patient satisfaction. Improving communication, comprehension, and efficiency is crucial to foster a more patient-centered approach that addresses both clinical outcomes and the overall patient experience.

Psychometric Properties and Cross-Cultural Validation of the Chinese Version of HSOPE Scale

The Chinese HSOPE's Cronbach's alpha (0.93) was close to the original Italian version (0.95), indicating strong internal consistency in both cultural contexts. Results from the EFA suggested that the Chinese version maintains the same unidimensional structure as the original, supporting its use across diverse healthcare settings. Most item loadings aligned well, though the items "Did you receive clear and comprehensible information from the staff when you asked questions?" and "Did you feel involved in decision making regarding treatment?" had slightly lower loadings (0.69, 0.69) compared to the original (0.88, 0.81). This difference may be due to the hierarchical nature of Confucian culture in China,[32] where patients tend to defer to medical authorities. Combined with the predominance of a doctor-led collaborative model[33] and limited knowledge in decision-making,[34] this contributes to a reduced tendency to seek detailed information or actively participate in decision-making. Additionally, the good model fit in the CFA further reinforces the scale's suitability for evaluating outpatient experiences in China. Overall, these results suggested the Chinese version has good construct validity and reliability for assessing healthcare organizational performance, with potential for broader cross-cultural application.

Determinants of Outpatient Satisfaction: Demographic and Service-Related Factors

Our study found that being older and single were positively associated with outpatient satisfaction. This finding of high outpatient satisfaction among older patients aligns with a study in Saudi Arabia,[35] which showed that elderly patients had a satisfaction rate 2.31 times higher than younger counterparts, likely due to their years of healthcare interactions that help them better understand medical processes and reduce information gaps with doctors. This trend is also observed in China, where a systematic review found elderly outpatients report higher satisfaction than their younger and middle-aged peers.[36] What sets China apart is that many elderly patients have fewer family caregivers, making them more reliant on the medical system and thus more likely to value doctors' expertise. Similarly, single patients may rely more on healthcare due to a lack of family support, placing greater importance on the quality of clinical interactions, which is consistent with Aziz's[37] findings in Malaysia. To enhance satisfaction among these groups, healthcare providers should offer tailored, patient-centered care by focusing on communication and trust-building. Outreach programs and regular follow-ups for older and single patients could further improve their experiences.

Conversely, negative factors such as visits to specific departments, inadequate communication, lack of care and respect, and long wait times significantly reduced satisfaction. We found lower satisfaction in gynecology, obstetrics, and pediatric departments, which aligns with a study at Malaysia's National Referral Center, where only 50.5% of caregivers expressed satisfaction with pediatric clinic services.[38] This may be due to the sensitive nature of these visits, which often involve multiple stakeholders, highlighting the need for better communication and personalized care in these departments. Regarding communication, especially the lack of explanation about treatment purpose and medication guidance, our findings are supported by California researchers, who noted that Asian doctors are more likely than non-Asian doctors to receive lower scores in explanation (37.3% vs 44.1%),[39] reflecting potential regional gaps in detailed communication. This may be due to the high outpatient volume in countries like China, leading to insufficient communication with doctors.[22] This suggests that implementing standardized communication checklists or electronic prompts in high-volume clinics could ensure consistent delivery of critical information. Lack of privacy protection also contributed to negative experiences, as compromised privacy can undermine patient trust and satisfaction. Khuwa' study verified that 66% of doctors do not respect their patients' privacy,[40] underscoring the need for healthcare facilities to prioritize privacy to foster respect and dignity.

Extended wait times affecting satisfaction is a well-documented issue worldwide. The average waiting time for outpatients at a tertiary hospital in Pakistan is 45 minutes.[41] A United States study found that for every additional 10 minutes of waiting time, the likelihood of patient-reported satisfaction decreases by 43.4%.[42] Excessive waiting leading to frustration and anxiety, negatively impacting patient experiences.[43,44] Optimizing scheduling and workflows could help improve patient satisfaction. A newly discovered factor, low comprehension of doctor's communication, significantly impacted satisfaction. Unlike studies focused on providers, doctor–patient relationships,[45,46] or environmental factors,[47] this study highlights patient understanding as key. Poor comprehension leads to confusion and dissatisfaction, indicating that clearer communication could enhance patient experience and adherence.

Limitations

Several limitations were noted. First, the cross-cultural adaptation process lacked a formal content validity assessment by an expert committee and pilot testing with the target population, which means we cannot fully rule out potential issues with item relevance, clarity, or contextual appropriateness that such steps might have revealed. Although subsequent quantitative analyses supported the scale's psychometric properties, this remains a methodological limitation. Second, the use of convenience sampling from a single hospital in Guangzhou limits the sample's representativeness and may introduce selection bias, affecting its generalizability to other regions or healthcare settings. This method may also lead to the over- or under-representation of certain patient groups, skewing results. Third, the reliance on self-reported data introduces potential biases, such as recall and social desirability bias, which could affect the accuracy of the findings. Fourth, the cross-sectional design limits the ability to capture changes in outpatient experiences over time, making it impossible to assess trends or the long-term impact of interventions. Lastly, test–retest reliability was not assessed in this study due to time and resource constraints, as well as the self-administered nature of the survey, which could introduce variability in responses. Future studies with longitudinal designs would be needed to assess trends and the long-term impact of interventions.

Conclusion

The 10-item Chinese HSOPE scale demonstrates strong reliability and validity for assessing outpatient experiences in China. Positive factors, such as being older and single, highlight the need for tailored care. Negative factors, including visits to specific departments (gynecology, pediatrics), low comprehension of doctor's communication, lack of pre-test Information, absence of medication instructions, lack of perceived doctor's thoroughness and privacy protection, and long waiting times for medical services, reveal areas for improvement. Patients with low comprehension need additional support, while healthcare interactions require better communication, care, privacy, and efficiency. More importantly, this validated scale offers healthcare institutions a practical tool to systematically evaluate and enhance service quality. Implementing standardized communication protocols, streamlining workflows, and strengthening privacy protection represents directly actionable strategies derived from our findings. These findings provide valuable insights for advancing patient satisfaction and outpatient service quality in China. The validated scale also serves as a tool for future research and practice to identify areas needing intervention, guiding improvements in patient engagement and outcomes.

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Disclosure

The authors report no conflicts of interest in this work.

References

1. Katsaliaki K. Evaluating patient and medical staff satisfaction from doctor–patient communication. *Int J Health Care Qual Assur*. 2022;35(1):38–55. doi:10.1108/IJHCQA-03-2022-0033

2. Guadie YG, Kibret AK, Adem KS, et al. Patient's satisfaction in physiotherapy outpatient departments of Amhara regional comprehensive specialized hospitals, Ethiopia. *BMC Health Serv Res*. 2022;22:1011. doi:10.1186/s12913-022-08338-y
3. McIntyre D, Chow CK. Waiting Time as an Indicator for Health Services Under Strain: a Narrative Review. *Inquiry*. 2020;57:46958020910305. doi:10.1177/0046958020910305
4. Walle Z, Worku F, Sraneh Y, et al. Overall time spent by clients from entry to exit and associated factors in out-patient departments in public hospitals of Jimma Zone southwest, Ethiopia. *PLoS One*. 2024;19:e0296630. doi:10.1371/journal.pone.0296630
5. Cha YJ. Key Factors Influencing Outpatient Satisfaction in Chronic Disease Care: insights from the 2023 Korea HSES. *Healthcare*. 2025;13 (6):655. doi:10.3390/healthcare13060655
6. Gant-Farley HY, Ross MK, Hudak RP. After COVID-19: improving the Patient's Outpatient Appointment Experience. *J Patient Exp*. 2021;8:23743735211039320. doi:10.1177/23743735211039320
7. Manzoor F, Wei L, Hussain A, et al. Patient Satisfaction with Health Care Services; An Application of Physician's Behavior as a Moderator. *Int J Environ Res Public Health*. 2019;16. doi:10.3390/ijerph16183318
8. Bancsik K, Ilea CDN, Daina MD, et al. Comparative Analysis of Patient Satisfaction Surveys-A Crucial Role in Raising the Standard of Healthcare Services. *Healthcare*. 2023:11. doi:10.3390/healthcare11212878
9. Patel S, Huang M, Miliara S. Understanding Treatment Adherence in Chronic Diseases: challenges, Consequences, and Strategies for Improvement. *J Clin Med*. 2025;14(17):6034. doi:10.3390/jcm14176034
10. Qirko S, Prifti V, Kicaj E, Cercizaj R, Rogozea L. Adherence Barriers, Patient Satisfaction, and Depression in Albanian Ambulatory Patients. *Healthcare*. 2025;13(14):1707. doi:10.3390/healthcare13141707
11. Ferreira J, Patel P, Guadagno E, et al. Patient experience or patient satisfaction? A systematic review of child- and family-reported experience measures in pediatric surgery. *J Pediatr Surg*. 2023;58(5):862–870. doi:10.1016/j.jpedsurg.2023.01.015
12. Mühlbacher A, Satisfaction SEP-R. Experiences, and Preferences: same but Different? *Value Health*. 2023;26(1):1–3. doi:10.1016/j.jval.2022.10.005
13. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature[J]. *Soc sci med*. 2000;51(7):1087–1110.
14. Garratt AM, Ø A B, Krogstad U, et al. The OutPatient Experiences Questionnaire (OPEQ): data quality, reliability, and validity in patients attending 52 Norwegian hospitals. *Qual Saf Health Care*. 2005;14:433–437. doi:10.1136/qshc.2005.014423
15. Giordano LA, Elliott MN, Goldstein E, et al. Development, implementation, and public reporting of the HCAHPS survey. *Med Care Res Rev*. 2010;67:27–37. doi:10.1177/1077558709341065
16. Epstein RM, Franks P, Fiscella K, et al. Measuring patient-centered communication in patient-physician consultations: theoretical and practical issues. *Soc Sci Med*. 2005;61:1516–1528. doi:10.1016/j.socscimed.2005.02.001
17. Coluccia A, Ferretti F, Pozza A. Health Services OutPatient Experience questionnaire: factorial validity and reliability of a patient-centered outcome measure for outpatient settings in Italy. *Patient Relat Outcome Meas*. 2014;5:93–103. doi:10.2147/PROM.S66500
18. Lee T, Lin EC, Lin HC. Communication skills utilized by physicians in the pediatric outpatient setting. *BMC Health Serv Res*. 2022;22:993. doi:10.1186/s12913-022-08385-5
19. Mahajan P, Anand A, Hossain S, Vishwakarma M. Exploring Patient Satisfaction and Determinants in Outpatient Services: a Cross-Sectional Study. *Cureus*. 2025;17(1):e77345. doi:10.7759/cureus.77345
20. Liao EN, Chehab LZ, Neville K, Liao J, Patel D, Sammann A. Using a human-centered, mixed methods approach to understand the patient waiting experience and its impact on medically underserved Populations. *BMC Health Serv Res*. 2022;22(1):1388. doi:10.1186/s12913-022-08792-8
21. Mulinganya V, Asima F, Mirindi P, Karemere H. Temps d'attente prolongés aux services de consultation médicale: enjeux et perspectives pour des hôpitaux de Bukavu en République Démocratique du Congo [Prolonged waiting times for medical consultation services: challenges and opportunities for hospitals in Bukavu, Democratic Republic of the Congo]. *Pan Afr Med J*. 2018;29:173. doi:10.11604/pamj.2018.29.173.13651
22. Guo L, Du X, Wu H, et al. Factors associated with patients' healthcare-seeking behavior and related clinical outcomes under China's hierarchical healthcare delivery system. *Front Public Health*. 2024;12:1326272. doi:10.3389/fpubh.2024.1326272
23. Qin A, Qin W, Hu F, et al. Does unequal economic development contribute to the inequitable distribution of healthcare resources? Evidence from China spanning 2001-2020. *Global Health*. 2024;20:20. doi:10.1186/s12992-024-01025-z
24. Xie Z, Or C. Associations Between Waiting Times, Service Times, and Patient Satisfaction in an Endocrinology Outpatient Department: a Time Study and Questionnaire Survey. *Inquiry*. 2017;54:46958017739527. doi:10.1177/0046958017739527
25. Meng M, Li X, Zhao J, Hao Y. When western concept meets eastern culture: exploring the impact of Confucianism on shared decision-making in China. *Asia Pac J Oncol Nurs*. 2024;11(11):100586. doi:10.1016/j.apjon.2024.100586
26. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet*. 2007;370 (9596):1453–1457. doi:10.1016/S0140-6736(07)61602-X
27. Jones PS, Lee JW, Phillips LR, et al. An adaptation of Brislin's translation model for cross-cultural research. *Nurs Res*. 2001;50:300–304. doi:10.1097/00006199-200109000-00008
28. Sakaluk JK, Short SD. A Methodological Review of Exploratory Factor Analysis in Sexuality Research: used Practices, Best Practices, and Data Analysis Resources. *J Sex Res*. 2017;54:1–9. doi:10.1080/00224499.2015.1137538
29. Marsh HW, Hau KT, Balla JR, et al. Is More Ever Too Much? The Number of Indicators per Factor in Confirmatory Factor Analysis. *Multivariate Behav Res*. 1998;33:181–220. doi:10.1207/s15327906mbr3302_1
30. Bentler PM. Comparative fit indexes in structural models. *Psychol Bull*. 1990;107:238–246. doi:10.1037/0033-2909.107.2.238
31. Johnston R, Jones K, Manley D. Confounding and collinearity in regression analysis: a cautionary tale and an alternative procedure, illustrated by studies of British voting behaviour. *Qual Quant*. 2018;52:1957–1976. doi:10.1007/s11135-017-0584-6
32. Badanta B, González-Cano-Caballero M, Suárez-Reina P, et al. How Does Confucianism Influence Health Behaviors, Health Outcomes and Medical Decisions? A Scoping Review. *J Relig Health*. 2022;61:2679–2725. doi:10.1007/s10943-022-01506-8
33. Lyu Y, Xu Q, Liu J. Exploring the medical decision-making patterns and influencing factors among the general Chinese public: a binary logistic regression analysis. *BMC Public Health*. 2024;24:887. doi:10.1186/s12889-024-18338-8
34. Li X, Yang D, Meng M, et al. Shared decision-making in healthcare in mainland China: a scoping review. *Front Public Health*. 2023;11:1162993. doi:10.3389/fpubh.2023.1162993

35. Alhasan MS, Alahmadi IM, Alhilali HF, et al. Determinants of patient satisfaction among outpatients with chronic illnesses in the region of medina. *BMC Health Serv Res*. 2025;25(1):953. doi:10.1186/s12913-025-13116-7
36. Li Y, Gong W, Kong X, Mueller O, Lu G. Factors Associated with Outpatient Satisfaction in Tertiary Hospitals in China: a Systematic Review. *Int J Environ Res Public Health*. 2020;17(19):7070. doi:10.3390/ijerph17197070
37. Aziz Z, Chong NJ. A satisfaction survey of opioid-dependent patients with methadone maintenance treatment. *J Subst Abuse Treat*. 2015;53:47–51. doi:10.1016/j.jsat.2014.12.008
38. Selvarajah M, Yamamoto T, E SYM, Kariya T, Hamajima N. Satisfaction With Health Care Services at the Pediatric Specialist Clinic of the National Referral Center in Malaysia: cross-sectional Study of Caregivers'. *Perspectives JMIRx Med*. 2022;3(2):e33025. doi:10.2196/33025
39. Tran TB, Raoof M, Melstrom L, et al. Racial and Ethnic Bias Impact Perceptions of Surgeon Communication. *Ann Surg*. 2021;274(4):597–604. doi:10.1097/SLA.0000000000005060
40. Khuwa ZK, Matlala SF, Ntuli TS. Outpatients' satisfaction with healthcare services received at a district hospital in Botswana. *Ghana Med J*. 2022;56(3):215–220. doi:10.4314/gmj.v56i3.12
41. Kamran S, Imami S, Jabeen S, Farooq A, Zafar S, Qureshi FU. A Comprehensive Analysis of Wait Times in Ambulatory Obstetrics and Gynecology Clinic at a Tertiary Care Hospital in Pakistan. *Cureus*. 2024;16(9):e69442. doi:10.7759/cureus.69442
42. Redding TS, Keefe KR, Stephens AR, Gurgel RK. Evaluating Factors That Influence Patient Satisfaction in Otolaryngology Clinics. *Ann Otol Rhinol Laryngol*. 2023;132(1):19–26. doi:10.1177/00034894211055531
43. Hussain A, Asif M, Jameel A, et al. Measuring OPD Patient Satisfaction with Different Service Delivery Aspects at Public Hospitals in Pakistan. *Int J Environ Res Public Health*. 2019;16. doi:10.3390/ijerph16132340
44. Zhang H, Ma W, Zhou S, et al. Effect of waiting time on patient satisfaction in outpatient: an empirical investigation. *Medicine*. 2023;102:e35184. doi:10.1097/MD.0000000000035184
45. Khanal MC, Karki L, Rijal B, et al. Patient Satisfaction in Doctor Patient Communication in a Tertiary Care Hospital of Kathmandu: a Descriptive Cross-Sectional Study. *JNMA J Nepal Med Assoc*. 2021;59:317–321. doi:10.31729/jnma.6289
46. Tian CY, Wong EL, Qiu H, et al. Patient experience and satisfaction with shared decision-making: a cross-sectional study among outpatients. *Patient Educ Couns*. 2024;129:108410. doi:10.1016/j.pec.2024.108410
47. Xuan X, Li Z, Chen X, et al. Study of the Physical Environment of Waiting Areas and Its Effects on Patient Satisfaction, Experience, Perceived Waiting Time, and Behavior in China. *HERD*. 2021;14:108–123. doi:10.1177/1937586721989058