The Impact of Chronic Illness on the Patient Experience: Results From a Cross-Sectional Comparative Study in a Comprehensive Tertiary Hospital in China

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Abstract

Objective: Improving the satisfaction and medical experience of patients is a basic goal of the comprehensive reform of public hospitals in China. This study aimed to investigate the patient experience and its influencing factors, and to compare medical experiences between patients with and without chronic disease, with a view to providing suggestions for improving the quality of public hospitals in China. Methods: A cross-sectional comparative study involving 102 patients discharged from Taizhou Hospital of Zhejiang Province, a tertiary public hospital in China, was conducted. The patients were invited to participate in a survey comprising the Picker Patient Experience Questionnaire (PPE-15), and an overall satisfaction evaluation (on a scale of 1-10). The patients were divided into two groups according to whether or not they had a chronic disease, and the medical experience and overall satisfaction of the groups were compared. Descriptive statistics (frequency, median, mean), chi-square analysis, and Mann–Whitney U tests were used to analyze the data. Results: No statistical significance was found in overall satisfaction between patients with and without chronic diseases, but there were differences in the patient experience score. Chronic illness had negative impacts on the experience of care coordination for patients and respect for patient preferences. Of the seven dimensions of the PPE-15, the scores for emotional support and respect for patient preferences were the lowest in both groups, and the item "want to be more involved in decisions made about care and treatment" scored the lowest among all items. Conclusions: Hospital managers and staff members should pay more attention to the emotional support and preferences of patients. For patients with chronic diseases, the standardization of medical care and patient participation in the medical process should be strengthened. Hospitals should also subdivide patient groups, ascertain the demands and expectations of patients, and carry out targeted evaluation and intervention measures.

Keywords

patient experience, patient satisfaction, chronic illness, PPE-15, quality improvement

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What Do We Already Know About This Topic?
The experience of care for patients in public hospitals in China is becoming an increasingly important indicator of the quality of care.

How Does Your Research Contribute to the Field?
This study shows that chronic illness impacts on the patient experience in the dimensions of care coordination and respect for patient preferences.

What Are Your Research's Implications Toward Theory, Practice, or Policy?
This study shows that, for patients with chronic diseases, hospitals should strengthen the standardization of medical care and promote patient participation in the medical process.

Introduction

As the medical model of public hospitals continues to evolve, the concept of a patient demand-oriented service has become critical to hospital reform and development. Since the 1990s, scholars have proposed replacing the study of "patient satisfaction" with the study of "patient experience."[1] Scientific research on the medical experience and feelings of patients in all aspects of medical care embodies this medical humanistic concept and is also an important measure to improve patient satisfaction when implementing reform of public hospitals. Through exploration and understanding of the patient experience, hospitals can significantly improve the quality of their medical service.[2]

The Picker Institute's hospital survey, which was originally developed at the Picker Institute in Boston, USA, is one of the most widely used patient surveys of the last 30 years. In 2002, the Picker Institute Europe developed and validated a 15-item version of the original inpatient survey, which is considered to represent a universal set of items applicable for most patients.[3] Rather than asking questions about general care satisfaction, the Picker Patient Experience Questionnaire (PPE-15) asks the patient about how they perceive specific areas of their care. The questionnaire provides a set of core questions, to which optional modules can be added. The scores are easy to interpret and analyze, and the results can inform policy decisions at any hospital. The PPE-15 has been studied and applied widely, and has become the basic framework for the global patient experience and satisfaction scale.[4-9] In Hong Kong, for example, Wong et al[10] developed the Hong Kong Inpatient Experience Questionnaire (HKIEQ) based on the PPE-15. Furthermore, Fang et al[11] applied the Picker Patient Experience Scale in 10 county-level public hospitals in China to evaluate the medical experience of patients and showed that the higher the patient experience and satisfaction, the higher the patient loyalty and their possibility of revisiting the same hospital.

In 2018, the prevalence of chronic diseases among Chinese residents was 34.3%, which rose to 62.3% for those aged 65 and above.[12] Unlike traditional, encounter-based care for acute diseases, chronic diseases require ongoing attention. In chronic illnesses such as asthma, cardiovascular disease, depression, diabetes, heart failure, and migraine, the patient plays a central role in managing the broad array of factors that contribute to their health.[13] The disease state may affect a patient both physically and mentally. Existing literature shows that chronic illness has a greater effect on psychological functioning than on physical and social functioning.[14]

Anxiety and depressive disorders are the mental health problems most frequently encountered by patients who have chronic diseases. Furthermore, comorbidity of chronic physical conditions and affective and anxiety disorders is widespread.[15,16]

This study evaluated the medical experience of inpatients based on the PPE-15 scale and analyzed the impact of chronic disease status on the medical experience of inpatients, with a view to providing empirical evidence for the impact of chronic disease on the patient experience.

Methods

Participants

From January to March 2021, a survey was conducted among adult inpatients in Taizhou Hospital of Zhejiang Province, a tertiary public hospital in China. To be included, patients needed to be aged 18 years and above with a hospitalization duration of at least 4 days.

The questionnaire was distributed in two batches. Convenience sampling was used to distribute questionnaires in wards. Investigators visited all clinical wards every day for a week to distribute questionnaires to patients for whom discharge was planned within the next 24 hours. The mail survey was sent to a random sample. Respondents were randomly selected from among patients who had been discharged within the past month. The questionnaire could be mailed back to the hospital or returned to the outpatient service desk during the patient's next visit.

Participation was voluntary, and the participants were given a written informed consent form to explain the purpose of the study. Participants could cease completing the questionnaire at any time. If the patient could not or did not want to answer a question, they could leave it blank and move on to the next question. They were also instructed to answer the questionnaire from their own point of view. If a patient needed help to complete the questionnaire, the person helping was given instructions to minimize their input. Patients' private information did not appear in the questionnaire.

Survey Assessment Instrument

The study used the PPE-15, which comprises 15 items across the following 7 dimensions: S1–Information and education (items 1 and 2); S2–Coordination of care (item 3); S3–Emotional support (items 4, 8, and 9); S4–Respect for patient preferences (items 5-7); S5–Physical comfort (item 10);

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Table 1. An example of questions from PPE-15 and the scoring method[a].

Question and Response Option	Score Assigned
When you had important questions to ask a doctor, did you get answers that you could understand?	
1. Yes, always	10
2. Yes, sometimes	5
3. No	0
4. I had no need to ask	-

[a]Score calculation = (n1*10+n2*5+n3*0)/(n1+n2+n3), n1= number of responses of the most positive answer, n2= number of responses of the intermediate answer, n3= number of responses of the least positive answer.

S6–Involvement of family and friend (items 11 and 12); and S7–Continuity and transition (items 13-15).[17] There were several possible options in response to each question, and patient chose based on their recollection of their experience. Responses were scored, with the most positive answer scored as 10, the least positive as 0, and intermediate answer options as 5. The higher the score, the better the patient experience. Table 1 shows an example of the PPE-15 questions and the scoring method. The translation of the survey instrument in this study was done with reference to the Chinese version of the PPE-15 translated by Fang et al,[11] which has been validated.

For comparison with previous practice in the hospital and previous studies, two additional items were also included in the questionnaire: overall satisfaction and patient loyalty (possibility of revisiting). Overall patient satisfaction was rated on a scale of 1 to 10, with a higher score representing a better experience. The loyalty item asked patients if Taizhou Hospital would be their first choice of hospital if they could choose again using a 4-point scale (with possible response categories of never, may not, maybe, and definitely yes).

The last part of the questionnaire contained the basic information of patients, including gender, age, education level, health insurance type, region of patients, and service type. It also included the question "Do you have any physical or mental health conditions, disabilities, or illnesses that have lasted or are expected to last for 12 months or more?". For the purposes of our study, patients who answered "yes" were defined as having a chronic disease, and those who answered "no" were defined as not having a chronic disease.

Statistical Analysis

Excel 2013 was used for data entry and SPSS 23.0 software (IBM Corp, Armonk, NY, USA) was used for statistical analysis. The response options for each item in the PPE-15 were graded data (0 points, 5 points, and 10 points), which were described as the number of cases (percentage). As the total score and each dimension score of the PPE-15 were continuous data that did not follow a normal distribution, the median (lower quartile–upper quartile) form was used to describe the scores for medical experience. Two independent-samples nonparametric tests (Mann–Whitney U Test) were used to compare the difference in the medical experience scores between

patients with chronic diseases and those without chronic diseases. $P < .05$ was considered statistically significant.

Patient characteristics, overall satisfaction, and loyalty were classified and described as case numbers (percentage). The chi-squared test was used for comparison between patients with chronic diseases and those without chronic diseases. $P < .05$ was considered statistically significant.

Results

Sample

The reliability and validity of the questionnaire were tested (Cronbach's α = .77; Kaiser–Meyer–Olkin (KMO) = .64), and both were indicated to be good. A total of 390 questionnaires were sent out, and 112 questionnaires were recovered. Ten questionnaires with more than 70% of the information missing were excluded, which gave a final valid response rate of 26.15% (102/390). Of the 390 questionnaires, 200 were mailed to patients' homes, with a valid response rate of 19% (38/200), and 190 questionnaires were distributed to inpatients who were due for discharge from the hospital within 24 hours, with a valid response rate of 33.68% (64/190).

Among the survey participants, the male to female ratio was 11:9, and 18-44 year olds and 45-64 year olds accounted for 29.7% and 41.8% of respondents, respectively. The majority of respondents were educated to junior high school level or below (66.7%). More than half (51.5%) of the respondents were covered by the new rural cooperative medical system, while 38.6% were covered by urban medical insurance (employee/resident). The majority of respondents (69.6%) were admitted to hospital as outpatients planned in advance, and 68.3% patients were resident of the local county.

Analysis of the survey results showed that there was no statistically significant difference in medical experience scores according to patient demographics, such as gender, age, education level, payment type, admission pattern, and region. This paper focused on analyzing the differences in medical experience between patients with and without chronic diseases. A total of 41 patients had a chronic disease, 58 patients did not have a chronic disease, and 3 patients did not complete the health conditions question; therefore, the proportion of patients with chronic diseases was 41.4%

Table 2. Patient characteristics divided into chronic disease and non-chronic disease[a].

Patient Demographics	Chronic Disease, n (%)	Non-chronic Disease, n (%)	Overall, n (%)	χ^2	P-value
Gender					
Male	24(43.6)	31(56.4)	55(55.0)	.252	.616
Female	17(38.6)	27(61.4)	45(45.0)		
Age group					
18~44	4(14.8)	23(85.2)	27(29.7)	12.239	.002*
45~64	15(40.5)	22(59.5)	38(41.8)		
≥65	16(61.5)	10(38.5)	26(28.6)		
Education level					
Primary school or below	21(55.3)	17(44.7)	38(38.4)	5.098	.078
Middle school	9(33.3)	18(66.7)	28(28.3)		
High school or above	10(31.3)	22(68.8)	33(33.3)		

[a]Missing values of frequency were not counted, and the percentages of each group were valid percentages, the same as below.

Table 3. Comparison the total score and each dimension score of PPE-15 by disease state.

	Chronic Disease	Non-chronic Disease	Overall	Z	P-value
Total score of PPE-15	7.67(6.79~8.67)	8.67(7.33~9.30)	8.33(6.9~9.09)	−1.977	.048*
Score for each dimension[a]					
PPE-15:S1	10(7.5~10)	10(10~10)	10(7.5~10)	−1.392	.164
PPE-15:S2	10(5~10)	10(10~10)	10(10~10)	−2.650	.008*
PPE-15:S3	7.5(5~10)	6.67(5~10)	6.67(5~10)	−.970	.332
PPE-15:S4	6.67(5~8.33)	6.67(6.67~8.33)	6.67(6.67~8.33)	−2.654	.008*
PPE-15:S5	10(5~10)	10(5~10)	10(5~10)	−.834	.404
PPE-15:S6	10(5~10)	10(5~10)	10(5~10)	−.413	.680
PPE-15:S7	10(6.67~10)	10(8.33~10)	10(8.33~10)	−.849	.396

[a]7 dimensions of PPE-15: S1–Information and education; S2–Coordination of care; S3–Emotional support; S4–Respect for patient preferences; S5–Physical comfort; S6–Involvement of family and friend; S7–Continuity and transition.
*P-value is statistically significant ($P < .05$).

(41/99). Among the 41 cases of chronic disease, 13 patients had cancer, 9 had diabetes, 8 had kidney or liver disease, 7 had heart problems, 5 had breathing problems, 4 had joint problems, 3 had mental health conditions, and 17 had other chronic diseases.

As shown in Table 2, no statistically significant difference was observed in gender or education level between the patients with and without chronic diseases ($P > .05$). However, the group of patients with chronic diseases was older ($P < .05$), with patients aged 65 years and above accounting for 61.5% of the chronic disease group.

PPE-15 Score and Patient Overall Evaluation

The mean PPE-15 score of all respondents was 7.96 (Standard Deviation (SD) = 1.39), and the median score was 8.33. The lowest scoring dimensions were emotional support (S3) and respect for patient preferences (S4), both of which had a median score of 6.67.

Table 3 shows that the total PPE-15 scores for patients with and without chronic diseases were 7.67 and 8.67, respectively, with the difference between the two groups

being statistically significant (Z = −1.977; $P < .05$). The patient experience scores in the dimensions of care coordination (S2) and respect for patient preferences (S4) were significantly different between the two groups ($P < .05$).

The mean score for patients' overall satisfaction was 9.35 (SD = 1.03), with the median score being 10, and 79.41% of patients scored their satisfaction as very high (ie, a score of 9 or 10 out of 10). Table 4 shows that the patient satisfaction rates among those with and without chronic diseases were 82.50% and 83.64%, respectively, with no statistical difference being observed between the two groups ($\chi^2 = .021$; $P > .05$).

Patient Experience Score of Each Item in PPE-15

Table 5 shows the comparison of the scores for each PPE-15 item between patients with and without chronic diseases. In both groups, the lowest scoring item was item 6 "Not sufficiently involved in decisions about treatment and care."

In the dimension of care coordination (S2), the score for item 3 "Staff gave conflicting information" was 8.366 for all

Table 4. Comparison the overall satisfaction and revisiting possibility by disease state.

Item	Response Categories	Chronic Disease, n (%)	Non-chronic Disease, n (%)	χ^2	*P*-value
Overall satisfaction	Score = 9 or 10	33 (82.50)	46 (83.64)	.021	.884
	Score <9	7 (17.50)	9 (16.36)		
Visiting willing	Definitely yes	28 (68.29)	42 (73.68)	.340	.560
	Never or not sure	13 (31.71)	15 (26.32)		

respondents, and the scores for patients with and without chronic diseases were 7.375 and 9.224, respectively, showing statistical significance between the two groups ($Z = -2.65$; $P < .05$).

In the dimension of respect for patient preferences (S4), the score for item 5 "Doctors sometimes talked as if I was not there" was 8.450 for all respondents, and the scores for patients with and without chronic diseases were 7.500 and 9.298, respectively, showing statistical significance between the two groups ($Z = -2.582$; $P < .05$).

Discussion

Through the investigation and analysis of patients' medical experience, hospitals can effectively obtain feedback on their service delivery, understand the needs of patients in a timely manner, find aspects for improvement to enhance the quality of service, and truly implement the concept of patient-centered care.

The results of this survey showed that patients with and without chronic diseases evaluated their overall satisfaction of the hospital as very positive. Of the respondents, 61% scored 10 for overall satisfaction on a scale of 1-10, with an average score of 9.35, which might suggest that many patients have formed a relatively stable service supply-and-demand relationship with the hospital. As long as patient dissatisfaction did not accumulate to a critical point, patients tended to give a positive evaluation of the hospital. Of the respondents, 71% indicated that they would definitely choose Taizhou Hospital again, and there was no difference between patients with and without chronic diseases in their willingness to return to the hospital, which might be related to the fact that the hospital is a tertiary general hospital in the local area. However, the total PPE-15 score of 8.33 indicated that there was still room for improvement in terms of the patient medical experience at the hospital. Despite respondents' satisfaction with patient care and willingness to revisit the hospital, not all aspects of health care were successfully delivered, which is a finding similar to those in other countries.[17]

Of all the PPE-15 dimensions, emotional support (S3) and respect for patient preferences (S4) had the lowest scores. Among the 15 items, item 6 in the dimension of respect for patient preferences (S4) had the lowest score, indicating that patients want to be more involved in decisions about treatment and care. In the current context of limited healthcare resources, psychosocial care, and patient participation in shared decision-making can be overlooked. For the patient, deficits in psychosocial care may jeopardize their emotional comfort and impact on their ability to recover and participate in health-promoting activities.[18] This is a direction for hospital improvement in the future and an inevitable requirement for transformation from a biomedical model to biological–psychological–social medical model. Empowering patients can reduce risks and improve outcomes, and patient participation has been recognized as being essential for just and safe health care.[19] Therefore, there is a need to conduct more research on the valid modes of patient participation in shared decision-making.

The total patient experience score and the scores for the PPE-15 dimensions care coordination (S2) and respect for patient preferences (S4) showed significant differences between patients with and without chronic diseases. Patients who have chronic diseases attend the hospital more frequently and meet more medical staff than do patients without chronic diseases. As a result, they know more about the workings of the healthcare system and might notice problems in coordination and consistency among medical staff more easily. Therefore, it is particularly important to standardize treatment according to guidelines and improve homogenization of treatment through such means as clinical pathways. In our survey, patients who had chronic diseases gave lower scores for perceived respect from medical staff than did patients without chronic diseases. It is possible that patients who had chronic diseases understood more about their own condition and treatment, and thus hoped to participate more in the process of medical communication. Hospitals should pay more attention to these demands and try to make changes. In particular, encouraging patients to participate in patient safety plays a unique role in identifying medical risks and reducing medical errors, and is also advocated by the World Health Organization and national medical institutions.[20]

Living with a chronic disease is a complex, dynamic, circular, and multi-dimensional process involving the development of five different attributes: acceptance, coping, self-management, integration, and adjustment.[21] To further study the medical experience of patients with different chronic diseases, existing research proposes the use of personalized evaluation scales to help clinicians or managers to assess the quality of care from the perspective of patients.[22] Chronic diseases require partnerships between patients and

Table 5. Comparison of PPE-15 score in each item between 2 groups[a].

	Responses, n (%)						
Item[b]	Most Positive Answer	Intermediate Answer	Least Positive Answer	Score	Average Rank	Z	P-value
1. Doctors' answers to questions not clear (S1)							
Group 1	29(70.7)	11(26.8)	1(2.4)	8.415	44.84	−1.549	.121
Group 2	46(79.3)	9(15.5)	0(0)	9.182	51.23		
2. Nurses' answers to questions not clear (S1)							
Group 1	29(70.7)	10(24.4)	1(2.4)	8.500	46.16	−.953	.341
Group 2	45(77.6)	11(19.0)	0(0)	9.018	50.17		
3. Staff gave conflicting information (S2)							
Group 1	26(63.4)	7(17.1)	7(17.1)	7.375	42.83	−2.650	.008*
Group 2	50(86.2)	7(12.1)	1(1.7)	9.224	54.10		
4. Doctor did not discuss anxieties or fears (S3)							
Group 1	23(56.1)	14(34.1)	1(2.4)	7.895	50.24	−1.672	.095
Group 2	22(37.9)	28(48.3)	2(3.4)	6.923	42.04		
5. Doctors sometimes talked as if I was not there (S4)							
Group 1	27(65.9)	6(14.6)	7(17.1)	7.500	42.79	−2.582	.010*
Group 2	50(86.2)	6(10.3)	1(1.7)	9.298	53.36		
6. Not sufficiently involved in decisions about treatment and care (S4)							
Group 1	2(4.9)	16(39.0)	22(53.7)	2.500	42.98	−1.930	.054
Group 2	12(20.7)	22(37.9)	23(39.7)	4.035	53.23		
7. Not always treated with respect and dignity (S4)							
Group 1	33(80.5)	6(14.6)	2(4.9)	8.780	48.22	−.575	.565
Group 2	48(82.8)	9(15.5)	0(0)	9.211	50.42		
8. Nurses did not discuss anxieties and fears (S3)							
Group 1	20(48.8)	12(29.3)	4(9.8)	7.222	45.72	−.778	.436
Group 2	22(37.9)	24(41.4)	4(6.9)	6.800	41.90		
9. Not easy to find someone to talk to about concerns (S3)							
Group 1	19(46.3)	9(22.0)	2(4.9)	7.833	40.55	−.560	.575
Group 2	26(44.8)	19(32.8)	2(3.4)	7.553	38.01		
10. Staff did not do enough to control pain (S5)							
Group 1	21(51.2)	7(17.1)	1(2.4)	8.448	34.79	−.834	.404
Group 2	22(37.9)	14(24.1)	0(0)	8.056	31.56		
11. Family did not get opportunity to talk to doctor (S6)							
Group 1	22(53.7)	12(29.3)	2(4.9)	7.778	43.36	−.412	.680
Group 2	33(56.9)	19(32.8)	0(0)	8.173	45.29		
12. Family not given information needed to help recovery (S6)							
Group 1	23(56.1)	11(26.8)	4(9.8)	7.500	45.54	−.508	.611
Group 2	34(58.6)	21(36.2)	0(0)	8.091	48.01		
13. Purpose of medicines not explained (S7)							
Group 1	32(78.0)	7(17.1)	0(0)	9.103	46.42	−.036	.971
Group 2	44(75.9)	7(12.1)	2(3.4)	8.962	46.56		
14. Not told about medication side effects (S7)							
Group 1	30(73.2)	7(17.1)	3(7.3)	8.375	47.55	−.385	.700
Group 2	44(75.9)	8(13.8)	4(6.9)	8.571	49.18		
15. Not told about danger signals to look for at home (S7)							
Group 1	28(68.3)	11(26.8)	1(2.4)	8.375	46.30	−1.057	.290
Group 2	45(77.6)	12(20.7)	0(0)	8.947	50.89		

[a]Group 1: chronic disease group; Group 2: non-chronic disease group.
[b]15 items with dimension S1–S7 in parenthesis.
*P-value is statistically significant (P < .05).

professionals, which makes communication critical. Hospitals should conduct more communication training for medical staff to promote better doctor–patient relationships and patient satisfaction, which is deficient in biotechnology-oriented care.[23]

This study has some limitations. First, the questionnaire did not evaluate some important factors, such as the waiting time to access medical services, the level of medical technology, and the psychological state of patients. The questionnaires were not recovered on site, so the response rate was low and the sample size was small. Further, as the questionnaire was anonymous, in-depth interviews were not conducted to obtain more details about the patients' medical experiences. There were also other limitations, such as possible social desirability bias, bias introduced by the hospital-based study design, and the use of non-probability sampling, which should be addressed in future studies.

Conclusions

The overall satisfaction of patients at our hospital is high, but there is still room for improvement in terms of the patient experience. Our study found statistical differences between patients with and without chronic diseases in terms of the average medical experience and in the two PPE-15 dimensions of care coordination and respect for patient preferences. Patients who had chronic diseases were more concerned about the consistency and standardization of medical care and wanted to be more involved in the process of medical communication. Emotional support (S3) and respect for patient preferences (S4) received the lowest scores of all PPE-15 dimensions in this study and are potential areas for improvement. Regardless of whether or not they had a chronic disease, patients wanted to participate more in decisions about treatment and care, which should be given more attention in future studies.

To improve patient satisfaction and medical experience, hospitals should subdivide patient groups and carry out targeted evaluation and intervention measures. Specifically, based on the market segmentation of patients with chronic diseases, hospital managers and health service providers should use questionnaires and focus groups to ascertain the demands and expectations of patients, measure their satisfaction and experience, identify priority areas for improvement, and make improvements and innovations to the medical service product and process to exceed patients' expectations and win their loyalty.

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Data Availability

Data are available on request to the corresponding author.

References

1. Zastowny TR, Stratmann WC, Adams EH, Fox ML. Patient satisfaction and experience with health services and quality of care. *Qual Manag Health Care*. 1995;3(3):50-61.
2. Gualandi R, Masella C, Viglione D, Tartaglini D, Tartaglini D. Exploring the hospital patient journey: What does the patient experience? *PLoS One*. 2019;14(12):e0224899.
3. Jenkinson C, Coulter A, Bruster S. The picker patient experience questionnaire: Development and validation using data from in-patient surveys in five countries. *Int J Qual Health Care*. 2002;14(5):353-358.
4. Rahmqvist M, Bara AC. Patient characteristics and quality dimensions related to patient satisfaction. *Int J Qual Health Care*. 2010;22(2):86-92.
5. Pelletier D, Green-Demers I, Collerette P, Heberer M, Heberer M. Modeling the communication-satisfaction relationship in hospital patients. *SAGE open medicine*. 2019;7:2050312119847924.
6. Wolf A, Olsson L-E, Taft C, Swedberg K, Ekman I. Impacts of patient characteristics on hospital care experience in 34,000 Swedish patients. *BMC Nurs*. 2012;11:8.
7. Ashton F, Hamid K, Sulieman S, Eardley W, Baker P. Factors Influencing patient experience and satisfaction following surgical management of ankle fractures. *Injury*. 2017;48(4):960-965.
8. Findeklee S, Radosa JC, Schafhaupt S, et al. Evaluating the use of clavien-dindo classification and picker patient experience questionnaire as quality indicators in gynecologic endoscopy. *Arch Gynecol Obstet*. 2019;300(5):1317-1324.
9. Leonardsen A-CL, Grøndahl VA, Ghanima W, et al. Evaluating patient experiences in decentralised acute care using the picker patient experience questionnaire: Methodological and clinical findings. *BMC Health Serv Res*. 2017;17(1):685.
10. Wong ELY, Leung MCM, Cheung AWL, Yam CHK, Yeoh EK, Griffiths S. A population-based survey using PPE-15: Relationship of care aspects to patient satisfaction in Hong Kong. *Int J Qual Health Care*. 2011;23(4):390-396.
11. Min R, Li L, Zi C, Fang P, Wang B, Tang C. Evaluation of patient experience in county-level public hospitals in China: A multicentred, cross-sectional study. *BMJ Open*. 2019;9(11):e034225.
12. 谢学勤 吴士勇. 中国居民健康及卫生服务利用现状与变化趋势. *中国卫生信息管理杂志*. 2021;18(01):1-8.
13. Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic disease in primary care. *JAMA*. 2002;288(19):2469-2475.
14. Hwu YJ. The impact of chronic illness on patients. *Rehabil Nurs*. 2020;45(4):180-184.

15. Katon WJ. Epidemiology and treatment of depression in patients with chronic medical illness. *Dialogues Clin Neurosci*. 2011;13(1):7-23.
16. Teesson M, Mitchell PB, Deady M, Memedovic S, Slade T, Baillie A. Affective and anxiety disorders and their relationship with chronic physical conditions in Australia: Findings of the 2007 national survey of mental health and wellbeing. *Aust N Z J Psychiatr*. 2011;45(11):939-946.
17. Jenkinson C, Coulter A, Bruster S, Richards N, Chandola T. Patients' experiences and satisfaction with health care: Results of a questionnaire study of specific aspects of care. *Qual Saf Health Care*. 2002;11:335-339.
18. Williams AM, Lester L, Bulsara C, et al. Patient evaluation of emotional comfort experienced (PEECE): Developing and testing a measurement instrument. *BMJ Open*. 2017; 7(1):e012999.
19. Eldh AC, Holmefur M, Luhr K, Wenemark M. Assessing and reporting patient participation by means of patient preferences and experiences. *BMC Health Serv Res*. 2020;20(1):702.
20. Fleming MD, Shim JK, Yen I, Thompson-Lastad A, Burke NJ, Burke NJ. Patient engagement, chronic illness, and the subject of health care reform. *Med Anthropol*. 2021;40(3):214-227.
21. Ambrosio L, Senosiain García JM, Riverol Fernández M, et al. Living with chronic illness in adults: A concept analysis. *J Clin Nurs*. 2015;24(17-18):2357-2367.
22. Gibbons CJ, Small N, Rick J, Burt J, Hann M, Bower P. The patient assessment of chronic illness care produces measurements along a single dimension: Results from a Mokken analysis. *Health Qual Life Outcome*. 2017;15(1):61.
23. Thorne S. Patient-provider communication in chronic illness: a health promotion window of opportunity. *Fam Community Health*. 2006;29(1 Suppl):4S-11S.