

Original Article

Developing a patient satisfaction questionnaire for services provided in Iranian community pharmacies

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ABSTRACT

Objective: To develop a valid and reliable instrument in the Persian language for evaluating patient satisfaction with services provided in community pharmacies.

Methods: We selected a valid and reliable instrument from the literature and translated it to the Persian language. Some new items were added to the first draft based on the special characteristics of the Iranian health system. Then, the feasibility of utilizing the new instrument was assessed. In the third step, we conducted a formal content validity study to calculate content validity indices. Having completed the content validity study, the factorial structure of new instruments was determined by implementing a factorial analysis. Finally, the reliability of the instrument was assessed by assessment of Cronbach's alpha coefficient and test-retest reliability.

Findings: The developed instrument demonstrated suitable validity and reliability. The final instrument showed desirable content validity, with inter-rater agreement of 94% and 97% for relevance and clarity, respectively. Scale content validity indices for relevance and clarity were calculated as 96% and 92%, respectively, and comprehensiveness was calculated as 100%. Factor analysis resulted in seven factors with a cumulative variance of 62.14%. In internal consistency reliability, Cronbach's alpha for the whole instrument was 0.912. About test-retest reliability, six items showed "almost perfect" agreement, 18 items showed "substantial" agreement, and three items showed "moderate" agreement. Therefore, test-retest reliability assessment too demonstrated appropriate results.

Conclusion: The instrument demonstrated excellent validity and reliability for application in Iran. This instrument is useful for evaluating patient satisfaction with services provided in community pharmacies in the Persian-speaking communities.

Keywords: Community pharmacy services; content validity study; Iran; middle-income countries; patient satisfaction; questionnaire development

INTRODUCTION

Patient satisfaction can be viewed as a patient's evaluation or appraisal of health care services.^[1] It is one of the most essential components of the quality of health care^[2] and, therefore, is a key indicator of

the quality of provided services and is crucial for quality control and quality improvement in health care systems.^[3] It is also considered as an essential factor in the viability and sustainability of health care systems.^[3]

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It has been observed in many cases that patients who are satisfied with health care services will most probably continue with the services provided, keep their connection with providers, adhere to their treatment, and as a result enjoy better health. Therefore, a more efficient use of health care resources has been observed.^[3] Furthermore, by using patient assessments, health care providers can have a better idea of patients' requirements, interests, and perceptions. As a result, the providers are encouraged to be more responsible for the quality of provided services.^[3]

Studies on patient satisfaction with pharmacy services began more than 30 years ago and have been the subject of a considerable amount of studies ever since.^[4]

In one of the first attempts to measure patient satisfaction, Donabedian recommended measuring "patient satisfaction" as a direct result of provided health care.^[5] This concept was further explained by other researchers such as Ware *et al.*, who conceptualized patient satisfaction as a multi-dimensional construct.^[6] He also developed the Patient Satisfaction Questionnaire (PSQ), which has been one of the most widely used questionnaires for measuring patient satisfaction in health care services.^[3] Most of the studies in this field have their origins in the work of Ware *et al.*, and have adopted and measured satisfaction as a multidimensional construct.^[3]

In the field of pharmacy services, MacKeigan and Larson have developed a multidimensional instrument for measuring patient satisfaction with the services provided by community pharmacies.^[7-9] This questionnaire is considered as a reliable and valid instrument and has therefore been used in many different studies.^[10]

Even though in the English-speaking countries, there have been many studies in this field, in other countries, there is a lack of suitable instruments.^[4] In other countries, researchers should develop new instruments or adapt existing questionnaires, mostly English based, to their own cultural and linguistic identities.^[4] In the Persian language, a valid and reliable PSQ has been developed.^[11]

Since there was no valid and reliable questionnaire in the Persian language for evaluating patient satisfaction with general services provided by community pharmacies, we decided to perform a trans-cultural adaptation and develop a new instrument in the Persian language. As mentioned earlier, MacKeigan and Larson's instrument^[8] is a valid and reliable instrument and was adapted in many other languages. Therefore, we decided to perform

adaptation from this instrument. It should be noted that Iran's pharmacy practice system has its unique characteristics.^[12-14] We have carefully considered these features during the instrument development study.

METHODS

The procedures used in the development of the instrument were as follows:

Designing and developing the first draft of the questionnaire

Selecting a valid instrument from literature and translating it into the Persian language

We evaluated previously published instruments designed for measuring patient satisfaction with pharmacy services and finally selected MacKeigan and Larson's instrument.^[8] This instrument was adapted from the PSQ and demonstrates acceptable validity and reliability.^[6-8] MacKeigan and Larson designed this instrument to measure patient satisfaction with pharmacy services.^[3] The first draft of the questionnaire was generated by using the items of MacKeigan and Larson's instrument. The translation of the items was done by two bilingual experts, and the translated items were checked by one of the members in the study team. We applied only forward-translation process, and back-translation was not considered in the translation process.

Assessing the translated items by the panel of experts

It was of utmost importance to change the translated items according to the Iranian pharmacy practice characteristics, and cultural and linguistic context. Therefore, we decided that a panel of experts was required to evaluate the items.

The panel of experts was composed of five faculty members (a professor in pharmaceutical management, a professor in health policy, and three professors in clinical pharmacy) and, two members of Iran Pharmacists Association. Each member of the panel reviewed the draft items independently and made some comments on how to improve the questionnaire. Their comments consisted of revisions, additions, and deletions of the items. We collated their comments and used them to make necessary revisions to the questionnaire.

Because we wanted to perform an additional and separate content validity study in which we could calculate the content validity indices, the panel of experts reviewed the translated items just in one cycle.

The first draft of the questionnaire included 32 items, from which 18 were adapted from MacKeigan and

Larson's instrument and 14 new items were added by the panel of experts. The response scale considered for the items was a five-point Likert-scale of disagreement/agreement (strongly disagree, disagree, neutral, agree, and strongly agree).^[15] The draft was then revised using the findings of the study on the feasibility of utilizing the instrument, content validity, and factorial and reliability analyses as explained below.

Assessing the feasibility of utilizing the instrument

For assessing the feasibility of utilizing the instrument and comprehensibility of the questions from a lay person viewpoint, we tried the instrument on 25 respondents. In each of the interviews, we asked the respondents whether the questions were clear enough or not. In addition, we wrote down their comments and ideas and asked them whether they felt any modifications were required. Finally, the respondents' views and comments were used to refine the instrument further.

Content validity study

To ensure the content validity of our developed instrument, we performed three procedures. First, we adopted our first draft items from a valid and reliable instrument.^[7,8] Second, the panel of experts assessed the translated items. And finally, we conducted a formal content validity study to calculate content validity indices. For evaluating content validity indices of our developed instrument, we followed a few steps as described below.

Selecting content experts

To carry out the content validity study, we asked five faculty members (of two pharmacy faculties) and five community pharmacists to participate in the study as our content experts. The faculty members had extensive expertise in the research field and had done some similar studies. The community pharmacists had worked in community pharmacies for several years.

Designing content validity form

A standard content validity form was designed to carry out the content validity study. This form was composed of several components. The first part was a definition section defining the content validity indices. The purpose of including this section in our content validity form was that the experts could have equal perceptions about the meaning of indices.

This form also contained separate sections for each of the items asking relevance and clarity of that item. The response scale for clarity and relevance was in a four-point scale ranging from 1 (inappropriate) to 4 (appropriate). Furthermore, we requested the

respondents to suggest deleting any of the irrelevant items or making any necessary changes to the items to improve transparency, where needed.

In the last section of the content validity form, we requested the respondents to rate the comprehensiveness of the questionnaire. Comprehensiveness was defined as the ability of the tool to cover all the areas related to the investigation. The response scale for comprehensiveness was in a four-point scale ranging from 1 (incomprehensive) to 4 (comprehensive).

Sending content validity forms to the content experts

In this step, we sent content validity forms to the content experts and requested them to complete the forms in a month. All of the completed forms were returned in <3 weeks.

Statistical analysis

We calculated the following content validity indices by using the ratings in the content validity forms:

Inter-rater agreement

This index shows whether the content validity study is reliable or not. Inter-rater agreement (IRA) should be calculated for both relevance and clarity of the instrument.^[16] A less conservative approach was applied to measure IRA.^[14] In this approach, agreement is defined as where at least 80% of the content experts give similar scores to an item. We considered 70% as an acceptable level for IRA.^[16]

Item content validity index

We calculated this item for relevance and clarity of each of the items. Measuring item content validity indices for relevance and clarity of each item helps to make specific decisions about each of the items.^[17] It is measured as the number of respondents who score the item 3 or 4 to the total number of respondents.^[14,17] Given the number of respondents, we considered 78% as an acceptable level for item content validity index in this study.^[18]

Scale content validity index

This index shows the content validity of the developed instrument. It is defined as the average of the item content validity in each instrument.^[14,16,17,19] As in above-mentioned indices, this index is calculated for both relevance and clarity. We considered 70% as an acceptable level for scale content validity index.

Comprehensiveness index

This is the last type of content validity indices calculated in this study. This index is calculated by dividing the number of respondents who rate the comprehensiveness of all scale as "somehow comprehensive" and "comprehensive," by the total number of the respondents.^[14,19]

Factorial analysis

Having completed the content validity study, the factorial structure of the new instrument was determined by implementing a factorial analysis. For this purpose, the 27-item questionnaire obtained from the previous step was filled by some patients referred to the pharmacies.

The selected inclusion criteria

The inclusion criteria were patients who were 18 years of age or older, who were able to read and speak in Persian, and filled a prescription on the day of the interview for their recent acute illness or chronic disease.

Data collection team and data collection site

On February 2015, the data gathering process was carried out.

Because we wanted to collect 180 questionnaires in Tehran, we decided to select 12 pharmacies and collect 15 questionnaires from each pharmacy. The pharmacies were selected randomly from a list of pharmacies. The pharmacies were located in different regions of Tehran (they were selected randomly from a list of pharmacies in Tehran). Interviewers provided necessary description and information to the people approached for the study. They also took a verbal consent from the participants. The participants were told that they were free to participate in the study or to refuse. To consider ethical issues and to prevent response bias, we did not offer any financial incentives to the respondents.

Analysis

The factorial structure of the questionnaire was identified using factorial analysis.^[20] Prior to the factorial analysis, the Bartlett's test of sphericity was applied to confirm the presence of patterned relationship among variables. In addition, the Kaiser-Meyer-Olkin measure (KMO) of sampling adequacy was applied to determine the adequacy of the samples for factor analysis.^[20]

For factorial analysis, principal component analysis and varimax were applied for factor extraction and factor rotation, respectively. To determine the remaining factors, eigenvalues >1.0 was considered acceptable. For retaining items in the questionnaire, the factor loading should be >0.4.^[21]

Reliability assessment

The reliability of the 27-item questionnaire was assessed in two stages. First, the internal consistency reliability of the instrument was evaluated with Cronbach's alpha coefficient. This coefficient assesses the internal consistency of questions with evaluating the average inter-item correlation.^[22] The

minimum acceptable level for Cronbach's alpha coefficient is 0.6.^[23]

Second, having evaluated the Cronbach's alpha coefficient, test-retest reliability was assessed. Test-retest reliability evaluates the stability of responses to an instrument over time. We carried out a test-retest reliability assessment on 40 individuals with a 1-week interval. These 40 individuals were among 180 patients who filled the questionnaire in the pharmacies. Because the questionnaires must be answered 2 times by the same respondents with a 1-week interval, a week after completion of the first questionnaire, we called them and the second questionnaires were completed by telephone.

Since the responses to questions were in categorical order, we used "weighted kappa" coefficient for assessing test-retest reliability.^[14] Experts suggest that kappa ranging from 0.41 to 0.60 demonstrates "moderate" agreement, 0.61–0.80 demonstrates "substantial" agreement, and 0.81–1.00 demonstrates "almost perfect" agreement.^[21]

RESULTS

Feasibility of utilizing the instrument

On the basis of information gathered from the pilot study, all 25 respondents found the total questionnaire readable and comprehensible and just a few respondents had little problems with some items. As a result, the research team decided to keep all of the 32 items, but a few items were rephrased.

Content validity study

All of the 10 content experts at this stage completed the content validity forms. Using the ratings and comments provided by content experts, we performed the following analysis to assess the content validity of the developed instrument.

Inter-rater agreement

We calculated IRA for both relevance and clarity of the questionnaire. Following the less conservative approach, the IRA of 32 items of the questionnaire was calculated as 94% and 97% for relevance and clarity, respectively. Results for this kind of index were satisfied because of exceeding the minimum acceptable level of 70%.

Relevance assessment

At this stage, we evaluated item content validity index for the relevance of each of the questions in the developed instrument. In 28 of the questions, this index was greater than the acceptable level of 78%. In the other four questions, it was lower than 78%. Therefore, all four questions with item content

Table 1: Item content validity index for relevance and clarity of all items

| Item | Content validity study* | | |
|---|-------------------------|-----------------------|---|
| | I-CVI for relevance (%) | I-CVI for clarity (%) | Changing item after content validity assessment |
| Consideration | | | |
| 1. The pharmacist spends enough time with me to provide pharmacy services | 100 | 80 | √ |
| 2. I'm satisfied with the waiting time my prescriptions are filled | 100 | 100 | |
| 3. I'm satisfied with the behavior and attitude of pharmacy staff | 100 | 90 | √ |
| 4. The pharmacist has a respectful behavior with me | 100 | 90 | √ |
| 5. The pharmacist tries to make sure that I don't get into trouble using my medications | 100 | 80 | √ |
| 6. All in all, I have a positive judgment about the services I receive from the pharmacy | 80 | 90 | √ |
| Explanation | | | |
| 7. The pharmacist provides adequate explanation when I get a prescription filled (especially for a prescription filled for the 1 st time) | 100 | 100 | |
| 8. The pharmacist provides necessary warnings about my medications (side effects, drug-drug interactions, food and drug interactions), especially for medications received for the 1 st time | 90 | 90 | √ |
| 9. The pharmacist explains sufficiently about the treatment period (especially when I receive a medication for the 1 st time) | 90 | 90 | √ |
| 10. The pharmacist tries to make sure you understand how to take your medications properly | 100 | 100 | |
| 11. The pharmacist answers to my questions about other medications I take | 100 | 90 | √ |
| General | | | |
| 12. The pharmacist is available to answer questions that I have about my medications | 100 | 100 | |
| 13. The pharmacist is able to explain things to me in a way that I can understand | 100 | 100 | |
| 14. I receive the medications from the pharmacy exactly according to the prescription | † | † | |
| 15. There is enough labeling on my medications | 100 | 80 | √ |
| 16. The instructions on my medications are easily readable | 100 | 100 | |
| 17. I'm satisfied that imported medications are replaced with domestically produced medications (Iranian medications) in my prescriptions | 90 | 90 | √ |
| 18. The pharmacy services provided to me are perfect | 100 | 100 | |
| Other aspects | | | |
| 19. I'm happy that the pharmacy provides cosmetic products | 90 | 90 | √ |
| 20. I'm satisfied with the services provided by pharmacists in relation to herbal medicines | 100 | 100 | |
| 21. When necessary, the pharmacist consults and cooperates with the physician | 90 | 80 | √ |
| Financial aspects | | | |
| 22. I am satisfied with the amount of out-of-pocket payments for my medicines | 90 | 100 | |
| 23. I'm satisfied with medication costs compared to other household expenses | 90 | 90 | √ |
| 24. I'm satisfied with insurance coverage for my prescription medicines | 100 | 100 | |
| Accessibility | | | |
| 25. I'm satisfied with the time needed to get to the pharmacy where I fill my prescriptions | 80 | 80 | √ |
| 26. In an emergency, I can easily find a pharmacy to receive pharmacy services | 100 | 100 | |
| 27. My prescription medications are available in the pharmacy | 100 | 90 | √ |

*ICV-I for relevance and clarity calculated by 10 content expert, †This item was not subjected to the validity assessment, as it was prepared after the completion of the validity assessment. I-CVI=Item content validity index

validity of <78% were deleted from the instrument. Three of eliminated questions had the same meaning as the other questions in the instrument. These items are "The pharmacy staffs are

courteous and polite,” “I’m satisfied that imported medications are replaced with domestically produced medications (Iranian medications) in my prescriptions,” and “there is full coverage insurance for my medications.” The fourth question which was about vitamins and supplement products was deleted due to asking the same concept in other questions in a more general sense. This item was “pharmacies should provide vitamins and mineral supplements.”

Two questions with the item content validity index of >78% were merged with other questions as recommended. As a result, 26 questions remained in the questionnaire [Table 1]. The last two questions were “When I receive medication for the 1st time, the pharmacist provides necessary warnings” and “When I receive medication for the 1st time, the pharmacist offers me the necessary instructions.”

We calculated the scale content validity index for the remaining 26 items as 96%, which was greater than the acceptable level of 80%.

Clarity assessment

After removing four items due to results of relevance assessment, clarity assessment was performed for the

Table 2: Demographic characteristics of all participants in the factorial analysis

| Demographic characteristics | n (%) |
|-----------------------------|------------|
| Gender | |
| Male | 107 (62.2) |
| Female | 65 (37.8) |
| Age (years) | |
| 18-39 | 116 (70.3) |
| 40-65 | 38 (23.0) |
| +65 | 11 (6.7) |
| Educational level (years) | |
| 0-6 | 4 (2.4) |
| 6-12 | 64 (38.6) |
| 13-16 | 70 (42.2) |
| +16 | 28 (16.2) |

Table 3: Total variance explained

| Factor | Initial eigenvalues | | | Rotation sums of squared loadings | | |
|-------------------------|---------------------|------------------------|-----------------------|-----------------------------------|------------------------|-----------------------|
| | Total | Percentage of variance | Cumulative percentage | Total | Percentage of variance | Cumulative percentage |
| 1. Consideration | 8.573 | 31.751 | 31.751 | 3.192 | 11.823 | 11.823 |
| 2. Explanation | 1.803 | 6.676 | 38.427 | 3.084 | 11.422 | 23.245 |
| 3. General | 1.683 | 6.232 | 44.659 | 2.724 | 10.090 | 33.336 |
| 4. Technical competence | 1.329 | 4.921 | 49.580 | 2.166 | 8.023 | 41.359 |
| 5. Other aspects | 1.236 | 4.576 | 54.157 | 2.103 | 7.790 | 49.149 |
| 6. Financial aspects | 1.095 | 4.056 | 58.213 | 1.787 | 6.619 | 55.768 |
| 7. Accessibility | 1.060 | 3.924 | 62.137 | 1.720 | 6.369 | 62.137 |

Extraction method=Principal component analysis

remaining 26 items. The item content validity index for clarity was 100% for 11 items, 90% for 10 items, and 80% for five items. Although in all of the items this index was >80% as acceptable level, items which showed item content validity index of <100% were revised to increase clarity and all were kept in the questionnaire.

We calculated the scale content validity index for the remaining 26 items as 92%, which was greater than the acceptable level of 80% [Table 1].

Comprehensiveness

The comprehensiveness of the questionnaire was calculated as 100%. It should be noted that one of the experts recommended adding another item about the precision of making up prescriptions. We decided to add this item to the questionnaire, although it was not subjected to further validity assessment.

Factorial analysis

Totally, 180 questionnaires were collected (response rate of 82%) and 172 of the collected questionnaires were completed correctly. Demographic characteristics of participants are presented in Table 2. Data in the questionnaires were entered into statistical software and was applied for statistical analysis. We performed the following statistical analysis on the data obtained from collected questionnaires:

The Bartlett’s test of sphericity is 1609.786 with 351 degrees of freedom ($P < 0.000$), which confirms the presence of patterned relationship among variables. Moreover, the KMO of sampling adequacy was 0.886, which determines the adequacy of the samples for factor analysis. Based on the above-mentioned obtained results, we could apply these data for factorial analysis.

Principal component analysis with the criterion of an eigenvalue >1.0 resulted in seven factors. Cumulative variance explained by seven factors was 62.14% [Table 3]. Varimax rotation was applied to

Table 4: Rotated component matrix and results for test-retest reliability assessment

| Item | Factor | | | | | | | Test-retest study |
|---|--------|-------|-------|-------|-------|-------|-------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Weighted-Kappa |
| 1. The pharmacist spends enough time with me to provide pharmacy services | 0.673 | | | | | | | 0.615 |
| 2. I'm satisfied with the waiting time my prescriptions are filled | 0.576 | | | | | | | 0.717 |
| 3. I'm satisfied with the behavior and attitude of pharmacy staff | 0.505 | | | | | 0.433 | | 0.733 |
| 4. The pharmacist has a respectful behavior with me | 0.723 | | | | | | | 0.461 |
| 5. The pharmacist tries to make sure that I don't get into trouble using my medications | 0.573 | 0.447 | | | | | | 0.586 |
| 6. All in all, I have a positive judgment about the services I receive from the pharmacy | 0.551 | | | | | | | 0.603 |
| 7. The pharmacist provides adequate explanation when I get a prescription filled (especially for a prescription filled for the 1 st time) | | 0.645 | | | | | | 0.711 |
| 8. The pharmacist provides necessary warnings about my medications (side effects, drug-drug interactions, food and drug interactions), especially for medications received for the 1 st time | | 0.769 | | | | | | 0.831 |
| 9. The pharmacist explains sufficiently about the treatment period (especially when I receive a medication for the 1 st time) | | 0.708 | | | | | | 0.736 |
| 10. The pharmacist tries to make sure you understand how to take your medications properly | | 0.616 | | | | | | 0.652 |
| 11. The pharmacist answers to my questions about other medications I take | | 0.457 | | 0.464 | | | | 0.622 |
| 12. The pharmacist is available to answer questions that I have about my medications | | | | 0.644 | | | | 0.661 |
| 13. The pharmacist is able to explain things to me in a way that I can understand | | | | 0.591 | | | | 0.652 |
| 14. I receive the medications from the pharmacy exactly according to the prescription | 0.435 | | | 0.555 | | | | 0.562 |
| 15. There is enough labeling on my medications | | | | | 0.692 | | | 0.617 |
| 16. The instructions on my medications are easily readable | | | | | 0.497 | | | 0.733 |
| 17. I'm satisfied that imported medications are replaced with domestically produced medications (Iranian medications) in my prescriptions | | | | | 0.654 | | | 0.688 |
| 18. The pharmacy services provided to me are perfect | | | | | 0.462 | | | 0.617 |
| 19. I'm happy that the pharmacy provides cosmetic products | | | | | | | 0.745 | 0.844 |
| 20. I'm satisfied with the services provided by pharmacists in relation to herbal medicines | | | | | | | 0.652 | 0.728 |
| 21. When necessary, the pharmacist consults and cooperates with the physician | | | | | | | 0.449 | 0.695 |
| 22. I am satisfied with the amount of out-of-pocket payments for my medicines | | | 0.846 | | | | | 0.902 |
| 23. I'm satisfied with medication costs compared to other household expenses | | | 0.801 | | | | | 0.921 |
| 24. I'm satisfied with insurance coverage for my prescription medicines | | | 0.782 | | | | | 0.843 |
| 25. I'm satisfied with the time needed to get to the pharmacy where I fill my prescriptions | | | | | | 0.564 | | 0.673 |
| 26. In an emergency, I can easily find a pharmacy to receive pharmacy services | | | | | | 0.816 | | 0.822 |
| 27. My prescription medications are available in the pharmacy | | | | | | 0.438 | | 0.612 |

Extraction method=Principal component analysis, Rotation method=Varimax with Kaiser normalization

determine the distribution of items in seven obtained factors [Table 4]. Seven obtained factors were labeled consideration, explanation, general, technical competence, other aspects, financial aspects, and accessibility. It should be noted that the item 11 was included in its factor because of the conceptual similarities with other items in that factor.

Reliability assessment

Cronbach's alpha coefficient for the whole instrument (27 items) was 0.912, which confirms

acceptable internal consistency of the instrument. In the last step of the study, test-retest assessment was conducted on 40 respondents. Results for all of the items are presented in Table 4. Because the results of weighted-kappa for all of the items are satisfied, no further changes are required in the instrument.

Final instrument

The final developed instrument consists of 27 items in seven factors. Factors labeled as consideration (six items), explanation (five items), general (three

items), technical competence (four items), other aspects (three items), financial aspects (three items), and accessibility (three items) [Appendix 1].

DISCUSSION

We developed a valid and reliable questionnaire for the assessment of patient satisfaction with services provided in community pharmacies in the Persian-speaking communities.

The validity of this questionnaire to measure patient satisfaction with services provided in community pharmacies is based on two different assessments. First, we applied a quantitative approach for content validity assessment. The content validity assessment uses experts' views for evaluating relevance and clarity of the new instrument for each of the items and the whole scale.^[16,17,19] This approach was applied for instrument development in other fields of health services.^[24-30] As far as we know, this study is the first application of this method in instrument development studies related to patient satisfaction with services provided in community pharmacies in Iran. Hence, this instrument may also act as a prototype for others willing to develop instruments for measuring patient satisfaction with pharmacy services in other languages.

Similar studies in other health services which used content validity have assessed IRA and scale content validity index for relevance and clarity. The results of IRA for relevance and clarity range 75–99%.^[14,24] These results in this instrument for relevance and clarity are 87.5% and 96.9%, respectively.

The scale content validity index for relevance and clarity of this instrument are 96% and 92%, respectively. In comparison, other instruments in other fields of health services have reported corresponding values of 91–98.6%.^[14,24-30]

The second reason supporting the validity of this questionnaire for the intended application is the results of factorial analysis assessment. Factorial analysis resulted in seven factors for this instrument similar to the MacKeigan and Larson's instrument which were applied in preparing the initial draft of this questionnaire. Also, six factors in this instrument were labeled as the MacKeigan and Larson instrument. Each of the six factors is composed of items which are very similar to the two instruments.^[8]

We evaluated the reliability of this instrument in two different ways. First, Cronbach's alpha was assessed to evaluate the internal consistency of the instrument. Results for the internal consistency of the instrument

showed the value of Cronbach's alpha as 0.912, which is greater than the acceptable level of 0.60. Although values higher than 0.90 can suggest a high level of item redundancy,^[21,23] we decided to keep all the questions. In the future studies for evaluating patient satisfaction in community pharmacies by applying this instrument, we will decide to eliminate any question from the instrument if Cronbach's alpha continues with values higher than 0.90. About test-retest reliability, six items show "almost perfect" agreement, 18 items show "substantial" agreement, and three items (4, 5, and 14) show "moderate" agreement. According to our results, test-retest reliability of the instrument is acceptable.^[21] Therefore, no changes were needed in the instrument as a result of the test-retest study.

There are some limitations regarding this instrument development study. First, this study was performed in Tehran as the capital of Iran. Therefore, the instrument is geographically bounded. It is recommended to perform the necessary adjustments before utilizing this questionnaire in other countries.^[21] Moreover, for implementing this questionnaire in surveys performed in remote towns or rural areas inside Iran, some minor revisions might be necessary, especially in questions about financial aspects and accessibility. The other limitation is that the content of the questionnaire was developed using items from another validated instrument^[8] and also by adding some new items by experts. In this issue, we did not ask lay persons about the content of the questionnaire and the face validity assessment was limited to the lay person's viewpoint about the comprehensibility of the questions.

The results of this study confirm that content validity assessment can be a useful method in developing new instruments in health services research. Satisfying results for content validity indices, factorial analysis, and reliability analysis of the developed instrument gives us confidence that it can be used as a valid and reliable tool for evaluating patient satisfaction with services provided in community pharmacies in the Persian-speaking communities.

AUTHORS' CONTRIBUTION

SY carried out the literature review, participated in study design, performed consultation with experts and statistical analysis, and drafted the manuscript. AR participated in the study design, performed final revision of the manuscript, and supervised the whole project. AK participated in the study design, carried

out selection of the experts, and supervised the whole project. AS participated in the study design and statistical analysis. MV performed data entry process and participated in the literature review. AHM carried out data collection and helped to draft the manuscript. HZ participated in data collection and helped to draft the manuscript.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Schommer JC, Kucukarslan SN. Measuring patient satisfaction with pharmaceutical services. *Am J Health Syst Pharm* 1997;54:2721-32.
- Donabedian A. Criteria and standards for quality assessment and monitoring. *QRB Qual Rev Bull* 1986;12:99-108.
- Naik Panvelkar P, Saini B, Armour C. Measurement of patient satisfaction with community pharmacy services: A review. *Pharm World Sci* 2009;31:525-37.
- Traverso ML, Salamano M, Botta C, Colautti M, Palchik V, Pérez B. Questionnaire to assess patient satisfaction with pharmaceutical care in Spanish language. *Int J Qual Health Care* 2007;19:217-24.
- Donabedian A. Evaluating the quality of medical care. *Milbank Mem Fund Q* 1966;44:166-206.
- Ware JE Jr, Snyder MK, Wright WR, Davies AR. Defining and measuring patient satisfaction with medical care. *Eval Program Plann* 1983;6:247-63.
- MacKeigan LD, Larson LN. Development and validation of an instrument to measure patient satisfaction with pharmacy services. *Med Care* 1989;27:522-36.
- Larson LN, MacKeigan LD. Further validation of an instrument to measure patient satisfaction with pharmacy services. *J Pharm Mark Manage* 1994;8:125-39.
- Larson LN, Rovers JP, MacKeigan LD. Patient satisfaction with pharmaceutical care: Update of a validated instrument. *J Am Pharm Assoc (Wash)* 2002;42:44-50.
- Kradjan WA, Schulz R, Christensen DB, Stergachis A, Sullivan S, Fullerton DS, *et al.* Patients' perceived benefit from and satisfaction with asthma-related pharmacy services. *J Am Pharm Assoc (Wash)* 1999;39:658-66.
- Arab M, Rashidian A, Pourreza A, Tajvar M, Nemati RK, Sari AA, *et al.* Developing a Persian inpatient satisfaction questionnaire. *Int J Health Care Qual Assur* 2014;27:4-14.
- Hashemi-Meshkini A, Varmaghani M, Yousefi M, Yaghoobifard S, Zekri HS, Nikfar S, *et al.* From generic scheme to brand-generic scheme: Have new policy influenced the efficiency of Iranian pharmaceutical companies? *J Res Pharm Pract* 2014;3:88-93.
- Varmaghani M, Meshkini AH, Farzadfar F, Yousefi M, Yaghoobifard S, Varahrami V, *et al.* Evaluation of productivity in Iranian pharmaceutical companies: A DEA-based Malmquist approach and panel data analysis. *J Res Pharm Pract* 2015;4:51-6.
- Yaghoobifard S, Rashidian A, Kebriaeezadeh A, Majdzadeh R, Hosseini SA, Akbari Sari A, *et al.* Developing a conceptual framework and a tool for measuring access to, and use of, medicines at household level (HH-ATM tool). *Public Health* 2015;129:444-52.
- Kassam R, Collins JB, Berkowitz J. Developing anchored measures of patient satisfaction with pharmaceutical care delivery: Experiences versus expectations. *Patient Prefer Adherence* 2009;3:113-22.
- Davis LL. Instrument review: Getting the most from your panel of experts. *Appl Nurs Res* 1992;5:194-7.
- Polit DF, Beck CT. The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health* 2006;29:489-97.
- Lynn MR. Determination and quantification of content validity. *Nurs Res* 1986;35:382-5.
- Grant JS, Davis LL. Selection and use of content experts for instrument development. *Res Nurs Health* 1997;20:269-74.
- Hair JF, Anderson RE, Tatham RL, Black WC. *Multivariate Data Analysis*. 5th ed. New Jersey: Prentice Hall; 1998.
- Streiner DL, Norman GR. *Health Measurement Scales: A Practical Guide to Their Development and Use*. 4th ed. New York: Oxford University Press; 2008.
- Lê Q, Spencer J, Whelan J. Development of a tool to evaluate health science students' experiences of an interprofessional education (IPE) programme. *Ann Acad Med Singapore* 2008;37:1027-33.
- Nunnally JC, Bernstein IH. *Psychometric Theory*. 3rd ed. New York: McGraw-Hill; 1994.
- Schutz AL, Counte MA, Meurer S. Development of a patient safety culture measurement tool for ambulatory health care settings: Analysis of content validity. *Health Care Manag Sci* 2007;10:139-49.
- Long D, Young J, Rickard CM, Mitchell ML. Measuring paediatric intensive care nursing knowledge in Australia and New Zealand: How the basic knowledge assessment tool for pediatric critical care nurses (PEDS-BKAT4) performs. *Aust Crit Care* 2013;26:36-42.
- Nguyen C, Foster ER, Paciorkowski AR, Viehoever A, Considine C, Bondurant A, *et al.* Reliability and validity of the Wolfram Unified Rating Scale (WURS). *Orphanet J Rare Dis* 2012;7:89.
- Oriá MO, Ximenes LB, de Almeida PC, Glick DF, Dennis CL. Psychometric assessment of the Brazilian version of the Breastfeeding Self-Efficacy Scale. *Public Health Nurs* 2009;26:574-83.
- Albal E, Kutlu Y, Bilgin H. Psychometric properties of the Turkish version of the Depression Coping Self-efficacy Scale. *Nurs Health Sci* 2010;12:415-20.
- Tuffrey C, Bateman BJ, Colver AC. The Questionnaire of Young

People's Participation (QYPP): A new measure of participation frequency for disabled young people. *Child Care Health Dev* 2013;39:500-11.

30. Joventino ES, Oriá MO, Sawada NO, Ximenes LB. Apparent and content validation of maternal self-efficiency scale for prevention of childhood diarrhea. *Rev Lat Am Enfermagem* 2013;21:371-9.

APPENDIX

Appendix 1: English version of the questionnaire

Consideration

1. The pharmacist spends enough time with me to provide pharmacy services.
2. I'm satisfied with the waiting time my prescriptions are filled.
3. I'm satisfied with the behavior and attitude of pharmacy staff.
4. The pharmacist has a respectful behavior with me.
5. The pharmacist tries to make sure that I don't get into trouble using my medications.
6. All in all, I have a positive judgment about the services I receive from the pharmacy.

Explanation

7. The pharmacist provides adequate explanation when I get a prescription filled (especially for a prescription filled for the first time).
8. The pharmacist provides necessary warnings about my medications (side effects, drug-drug interactions, food and drug interactions), especially for medications received for the first time.
9. The pharmacist explains sufficiently about the treatment period (especially when I receive a medication for the first time).
10. The pharmacist tries to make sure you understand how to take your medications properly.
11. The pharmacist answers to my questions about other medications I take.

General

12. The pharmacist is available to answer questions that I have about my medications.
13. The pharmacist is able to explain things to me in a way that I can understand.
14. I receive the medications from the pharmacy exactly according to the prescription.

Technical Competence

15. There is enough labelling on my medications.
16. The instructions on my medications are easily readable.
17. I'm satisfied that imported medications are replaced with domestically produced medications (Iranian medications) in my prescriptions.
18. The pharmacy services provided to me are perfect.

Other Aspects

19. I'm happy that the pharmacy provides cosmetic products.
20. I'm satisfied with the services provided by pharmacists in relation to herbal medicines.
21. When necessary, the pharmacist consults and cooperates with the physician.

Financial Aspects

22. I am satisfied with the amount of out of pocket payments for my medicines.
23. I'm satisfied with medication costs compared to other household expenses.
24. I'm satisfied with insurance coverage for my prescription medicines.

Accessibility

25. I'm satisfied with the time needed to get to the pharmacy where I fill my prescriptions.
26. In an emergency, I can easily find a pharmacy to receive pharmacy services.
27. My prescription medications are available in the pharmacy.