

Evidence Based Care Journal

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The online version of this article can be found at
http://ebcj.mums.ac.ir/article_12092.html

Evidence Based Care Journal 2019 08:45 originally published
online January 2019

DOI: 10.22038/ebcj.2018.34642.1883

Online ISSN: 2008-370X

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Received: 07/09/2018

Accepted: 25/12/2018

Evidence Based Care Journal, 8 (4): 45-51

Abstract

Background: To make the best use of written information in education pamphlets, suitability criteria developed for instructional materials. Moreover, client satisfaction with the quality of written materials provided in hospitals for patients needs to be taken into account.

Aim: Therefore, the present study aimed to assess the suitability of patient education pamphlets and patient satisfaction among teaching hospitals in Mashhad, Iran.

Method: A total number of 542 patient education pamphlets developed in 11 teaching hospitals in Mashhad was collected via a census method and their suitability was investigated using Suitability Assessment of Materials (SAM) instrument. Subsequently, satisfaction with education pamphlets among 2820 hospitalized patients was evaluated using a questionnaire designed based on SAM instrument. The association between the suitability of the given pamphlets and patient satisfaction was also determined. Descriptive statistics and the Chi-square test were used to analyze the findings.

Results: The results revealed that 33.3% and 66.7% of the given pamphlets fell into the superior and adequate categories in terms of suitability, respectively. With regard to the satisfaction level, 0.7%, 26.4%, and 72.9 % of the patients were poorly, fairly, and completely satisfied with the pamphlets, respectively. Moreover, the pamphlets rated the higher suitability by patients obtained the higher satisfaction scores.

Implications for Practice: The results of this study indicated a need for reconsiderations in some suitability factors for the pamphlets. In this respect, the factors of cultural appropriateness as well as layout and typography rated as acceptable.

Keywords: Pamphlet, Patient Education, Patient Satisfaction

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Introduction

Patient education, as a key component of comprehensive care, is known as one of the most important nursing functions as well as a core component for enhancing health status (1). Moreover, patients with low levels of health literacy are subjected to medical emergencies, which include insufficient management of chronic diseases, and poor ability to understand the importance of using medications and diets. The given risks can also lead to increased hospitalization rates and, ultimately, poor health status (2). Despite the abundance of information available on magazines, newspapers, the Internet, and pharmaceutical companies, written patient education materials provided to audiences by healthcare centers are considered as the primary source of information for the majority of patients (3). Furthermore, it should be noted that instructional materials and written information are important and potentially useful tools for fulfilling verbal instructions. The use of written information may also improve patient information up to 50% leading to patient satisfaction (3). In addition, individuals need to understand health information to implement it in appropriate health decisions. However, the given information has been beyond the client perception in a way that 30%-50% of the patients have failed to understand the messages included (4).

In this regard, the results of numerous studies have suggested that such materials have been written beyond the level of literacy in audiences over the past 40 years. As a result, they have not even brought about any changes in patients' behaviors (5). Furthermore, if patients cannot read instructional materials, there is little hope to comprehend and use that information (6).

According to the studies conducted by Brownson (1998) and Aldridge (2004), it is reported that the majority of patients were ignorant of educational pamphlets, which was likely to occur more often in individuals with low levels of literacy (1).

In order to improve the quality of patient education, there are standards and factors for providing written patient education materials. The given factors are utilized as a tool to be of assistance in developing patient information. The use of such factors is undemanding as they are also endowed with written instructional subjects with high standards for a wider population and serve as a strategy for potential influence on patients to use (3).

Readability and suitability are two criteria used to assess the quality of written instructional subjects. In this regard, readability refers to factors, such as using words and the length of the sentences that have effects on success in reading. It is also regarded as a good method of determining how readers understand contents. In this respect, written materials should be developed at grade 6 or lower to add to reading comprehension in readers.

However, studies have reported that most of these instructional subjects have been written at grade 8 and above, which have marginalized patients with low literacy (3). Moreover, suitability criteria includes factors, such as content, readability level (using clear words), graphics (lines, maps, and layout), layout and typography (font size of at least 12), learning stimulation/motivation (dividing complicated themes into small pieces to help readers understand), and cultural appropriateness (providing images and examples according to a culture) (3).

It is also important for nurses to learn how to create instructional subjects and provide patients with opportunities to increase the understanding of their illnesses in order to achieve better adaptation. Written patient education materials are typically presented and they may be accepted or rejected by patients. Moreover, examining patient satisfaction has been considered as an important criterion to assess the quality of services provided by healthcare centers (1). Client satisfaction also reflects the quality of services provided. Additionally, determining the level of patient satisfaction is regarded as a criterion to measure the distance between patients' expectations of services and services provided at existing conditions. In fact, no care can have high quality unless the patients feel satisfied with the methods of care and services provided. Empirical evidence have also suggested that due to the importance of the quality of written instructional materials, patient education pamphlets have been used in most of the hospitals and specialized clinics; however, their suitability and patient satisfaction with the pamphlets have not been determined. Accordingly, the purpose of this study was to assess the suitability of patient education pamphlets and patient satisfaction among teaching hospitals in Mashhad, Iran.

Methods

This descriptive study aimed at assessing the suitability of patient education pamphlets and patient

satisfaction among teaching hospitals in Mashhad, including Imam Reza, Khatam, Dr. Shariati, Shahid Hashemi-Nejad, Ghaem, Omolbanin, Omid, Dr. Sheikh, Taleghani, Kamyab, and Montasariéh in 2015.

To this end, patient education pamphlets were collected using a census method. According to the scores obtained from Suitability Assessment of Materials instrument (SAM), the given pamphlets were categorized. Subsequently, 30 (5%) pamphlets were randomly selected to be distributed among the patients and they were asked to specify their levels of satisfaction with these materials.

To determine the sample size of the patients and examine the levels of patient satisfaction with the pamphlets, a high quality pamphlet assessed based on the given instrument was given to a group of 150 patients (which was 10 times more than the number of items evaluating patient's satisfaction with the quality of pamphlets) and their satisfaction levels were measured using this questionnaire.

Subsequently, the standard deviation for the mentioned group was obtained as 97.5 and assuming the equality of variances. The sample size was estimated as 94 patients per pamphlet (totally 2820 patients) using the formula for the estimation of the sample size with 95% confidence interval and error of 2.

The inclusion criteria were: 1) full consciousness, 2) age range between 12-80 years old, 3) mental stability (rational autonomy), 4) reading and writing literacy, 5) lack of vision impairment, 6) ability to speak in Persian, 7) willingness to participate in the study, and 8) lack of no pain or any problems distracting the patients from training.

The data collection instruments consisted of a patient demographic information form, SAM instrument, and a Patient Satisfaction with Quality of Education Pamphlet Scale. The SAM instrument included 22 criteria sets based on 6 factors of content evaluation, literacy demand, graphics, layout and typography, learning stimulation/motivation, and cultural appropriateness of the pamphlet.

A score from zero to 2 was assigned to each factor. The written materials were grouped into superior, adequate, and not suitable based on the percentages ranged from 70%-100%, 40%-69%, and 0%-39%, respectively (7). To determine patient satisfaction with pamphlets, a researcher-made questionnaire consisting of 15 items was used based on a five-point Likert-type scale (superior, adequate, suitable, poor, and very poor) and SAM instrument. Based on the percentages, the obtained scores were grouped into three levels, namely poor, relative, and complete.

The content validity of SAM instrument was measured using the opinions of 172 healthcare providers from different cultures (8). In this study, the validity of the translated SAM instrument was obtained using forward-backward technique. This instrument was also translated into Persian by three English-language experts, and subsequently the best version was retranslated by a Persian-language specialist to ensure the accuracy of the translation.

Moreover, the opinions of seven faculty members regarding the content suitability of this instrument were considered and it was ultimately approved. The patient satisfaction with quality of pamphlet scale was also submitted to seven faculty members of the School of Nursing and Midwifery. Furthermore, the face and content validities of the given instrument were evaluated qualitatively and quantitatively using content validity ratio and content validity index, respectively. The scale-level content validity index of the given instrument was determined as 0.9.

To verify the reliability of SAM instrument among raters, the inter-rater reliability was calculated using the degree of agreement among raters. The reliability of Patient Satisfaction with Quality of Pamphlet Scale was also determined as 0.95 using Cronbach's alpha correlation coefficient.

To collect the data, the researchers referred to teaching hospitals located in Mashhad as they obtained the relevant permissions to access the area under study from the Research Deputy Office and the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran. Moreover, the educational pamphlet files were obtained after making coordination with the educational supervisors in the given hospitals.

Subsequently, three evaluators (one of the author and two nursing experts trained in the field of the use of SAM instrument) examined the existing pamphlets based on SAM instrument. The average score based on the opinions of these evaluators was considered as the suitability score of the pamphlet.

The educational supervisors coordinated with the agents in the departments of the given hospitals; therefore, the patients were provided with pamphlets. After it was ensured that the pamphlets had been studied by the patients, they were given Patient Satisfaction with Quality of Pamphlet Scale. It

should be noted that the informed written consent for participation in the research was obtained from all patients.

The data were analyzed in SPSS software (Version 16). Descriptive statistics including central tendency and dispersion indices (mean and standard deviation) as well as frequency/percentage distribution were used to analyze the findings. The Chi-square test was also employed to calculate the nominal variables.

Results

In this study, a total number of 542 educational pamphlets and 2820 patients admitted to 11 teaching hospitals affiliated with Mashhad University of Medical Sciences, Mashhad, Iran, were examined. The majority of the patients (30.4%) were in the age range of 31-40 years old, whereas the age group of 11-20 years included 3.6% of the participants. Moreover, 42.8% of the respondents were male and the mean score of pamphlet suitability was reported as 65.6 ± 8.5 out of 100 as the maximum score (Table 1). According to SAM instrument, the suitability scores of the pamphlets were divided into three categories. The results showed that 183 (33.3%) and 359 (66.7%) pamphlets were assigned in to superior and adequate categories, respectively. However, no pamphlets fell into not suitable category.

The results of the descriptive statistics for each suitability factor of the given pamphlets demonstrated that the first (content) and second (literacy demand) factors obtained mean scores of 5.4 ± 0.4 and 6.2 ± 0.9 out of the maximum scores of 8 and 10, respectively. Mean scores of the third (graphics) and fourth (layout and typography) factors estimated as 4.7 ± 1.9 and 4.8 ± 0.8 out of the maximum scores of 10 and 6, respectively. Furthermore, with regard to the fifth (learning stimulation/motivation) and sixth (cultural appropriateness) dimensions, the obtained mean scores were 3.8 ± 0.7 and 3.7 ± 0.3 out of the maximum scores of 6 and 4, respectively.

Among the suitability factors, the highest (67.5) and the lowest (0.47) mean scores were assigned to the sixth (cultural appropriateness) and third (graphics) factors, respectively (Table 2).

According to the results, the majority of the patients (72.9%) were completely satisfied with the quality of education pamphlets provided for the patients in teaching hospitals of Mashhad, (Table 3). The obtained mean score of the patient satisfaction with the quality of education pamphlets was 57.9 ± 9.3 out of the maximum score of 100.

The findings also revealed that 77.4% of the patients had complete satisfaction with pamphlets rated as superior by the evaluators. The pamphlets evaluated as adequate in terms of suitability obtained 70.9% of the patient satisfaction. Moreover, the results of the Chi-square test showed a significant difference ($P < 0.001$) between the levels of patient satisfaction with pamphlets and the suitability of the pamphlets regarding the evaluators' opinions (Table 4). The mean scores of patient satisfaction with pamphlets rated as superior and adequate were 58.7 ± 9.6 and 57.5 ± 9.1 , respectively. Furthermore, the findings of the independent t-test ($t = 4.7$, $df = 2818$) showed a significant difference within the mean scores of both groups ($P < 0.001$).

Table 1. Mean, standard deviation, and other descriptive indices of suitability of patient education pamphlets

Number of pamphlets	Mean±standard deviation	Minimum	Maximum	95% confidence interval	
542	65.6 ± 8.5	43.2	89.4	65.8	65.4

Table 2. Description of suitability factors for patient education pamphlets

Suitability factors	Number of pamphlets	Mean±standard deviation	Maximum score	Mean score out of 100	95% confidence interval	
Content	542	5.4 ± 0.4	8	67.5	5.4	5.3
Literacy demand	542	6.2 ± 0.9	10	62	6.2	6.1
Graphics	542	4.7 ± 1.9	10	47	4.9	4.5
Layout and typography	542	4.8 ± 0.8	6	80	4.9	4.7
Learning stimulation/motivation	542	3.8 ± 0.7	6	63.3	3.9	3.7
Cultural appropriateness	542	3.7 ± 0.7	4	92.2	3.8	3.7

Table 3. Level of patient satisfaction with pamphlets in teaching hospitals of the city of Mashhad

Patient satisfaction	Number (percentage)	Mean±standard deviation
Poor	20 (0.7)	24.3±5.4
Relative	738 (26.3)	46.9±4.3
Complete	2057 (72.9)	62.1±6.2
Total	2820 (100.0)	57.9±9.3

Table 4. Frequency distribution of patients based on patient satisfaction with pamphlets and pamphlet suitability in evaluators' opinions

Patient satisfaction	Evaluators' opinions	
	Superior number (percentage)	Suitability number (percentage)
Poor	11 (1.2)	9 (5.0)
Relative	200 (21.4)	538 (26.3)
Complete	727 (77.4)	1330 (70.9)
Total	939 (100.0)	1876 (100.0)
Chi-square test results	X ² =20.3	df=2 P<0.001

Discussion

The results of the present study indicated that 66.7% and 33.3 % of the pamphlets had adequate and superior suitability, respectively. None of the pamphlets was rated as 'not suitable'. According to the study conducted by Ryan et al. (2014), SAM instrument was also used to assess patient education pamphlets. The results revealed that 11%, 58%, and 31% of the pamphlets were rated as not suitable, adequate, and superior in terms of SAM criteria (9). The findings of the study by Ryan et al. (2014) similarly showed that most instructional subjects were not suitable for individuals with limited levels of health literacy. In this respect, Branson (1998) also argued that the majority of the patients were heedless of educational pamphlets, which was probably more related to their low literacy level (1). Moreover, Ryan et al. (2014) stated that although 58% of the pamphlets had been rated as suitable, inequality in health education might be associated with low literacy levels in patients. The results of the investigation conducted by Ryan were consistent with the findings of the present study. In the present study, despite the fact that no pamphlet had been rated as not suitable, a small percentage of the pamphlets were found superior. Moreover, in terms of readability, the pamphlets were not in a good condition and the readability level of the given pamphlets was on grade 11 (10). In a study conducted by Vallance et al., (2008) on the assessment of the suitability of 66 patient education sources, 10 (15%), 36 (55%), and 20 (30%) sources obtained superior, adequate, and not suitable scores, respectively. In the given study, the suitability of the written subjects was not in line with initial recommendations for patient education and appropriate standards (11).

In terms of examining the six factors of suitability of the pamphlets, the results showed that the sixth factor, namely cultural appropriateness, had received the highest score and the third factor, namely graphics had been assigned with the lowest score. The other factors rated in order of top to bottom included the fourth (layout and typography), the first (content), the fifth (learning stimulation/motivation), and the second factor (literacy demand).

In this regard, the results of the study by Raeis Dana (2007) illustrated that the highest number of structural problems of education pamphlets were associated with the use of specialized words in their titles and content (12). In the investigation carried out by Arian et al. (2016), the level of literacy in patients was at grades 6 and 7 (middle school) and the level of readability of the education pamphlets was estimated at college level (13). In the present study, specialized words have been also employed in the development of the pamphlets (second factor).

In a study performed by Maghsoudi et al. (2012), the results proved that among the four domains of a pamphlet evaluation checklist, namely title, body, appearance and visual attraction, and structure and general points, the title domain obtained the highest quality score (14). In the present study, the titles of the pamphlets were clear enough.

In another investigation conducted by Ryan et al. (2017), only 8% of the patient education pamphlets had clear purposes. However, 92.8% of the pamphlets had summaries and reviews, and most of the pamphlets did not have proper graphics, layout and typography, and learning stimulation/motivation. Moreover, the pamphlets obtained low scores in terms of cultural appropriateness (9). Compared to the study performed by Ryan et al. (2017), the purposes of the pamphlets in the present study were

clear enough and the reduction of scores was merely observed in the first factor (content) due to the lack of summaries and reviews at the end of the majority of the pamphlets. Furthermore, in the present study, few illustrations had been used in numerous pamphlets. Some of these images were deprived of the required simplicity and did not reflect the original message (third factor). In terms of layout and typography, 80% of the pamphlets were of good quality and 47% of them had proper graphics. In addition, contrary to the study carried out by Ryan et al. (2017), the educational pamphlets had a high level of cultural appropriateness in the present study.

The results of the present study demonstrated that the majority of the pamphlets had acceptable quality in terms of layout and typography as well as cultural appropriateness. However, there was a need to revise the other factors. Therefore, more graphics as well as simpler and clearer illustrations were required to be used in the preparation of such pamphlets. It was also necessary to give the desired explanations for images and diagrams.

Given the evaluation of patient satisfaction with the quality of the pamphlets, the results indicated that most of the patients were satisfied with the quality of materials. Moreover; with regard to the association between patient satisfaction levels, the scores of pamphlets and their suitability level, the findings revealed that the pamphlets with higher suitability obtained higher satisfaction scores. This also indicated a positive relationship between suitability of the pamphlets and patient satisfaction. Furthermore, to the best of our knowledge, no studies have been conducted so far and this is the first study in the literature conducted on the association between the suitability of patient education pamphlets and patient satisfaction.

Implications for Practice

The findings of this study on six factors of pamphlet suitability showed that cultural appropriateness as well as layout and typography of the pamphlets were of good quality. However, in terms of content, there were no summaries/reviews in the pamphlets. In addition, considering the graphics, few illustrations have been employed, the images were not necessarily simple and did not imply the original message.

With regard to the factor of learning stimulation/motivation, most of the pamphlets have not used interactions and they had low motivation to attract readers. Given the factor of the level of readability, the mean readability level of the pamphlets was reported high (undesirable). Moreover, the patient showed the lowest level of satisfaction with graphics in the pamphlets.

In conclusion, although the education pamphlets provided for the patients in the teaching hospitals of Mashhad are endowed with adequate suitability, there are still inadequacies in some factors requiring revisions. Therefore, it is suggested to shed light on the other quality criteria of printed instructional materials for patient education in future studies.

Acknowledgments

This article is derived from an MA dissertation (Code No. 941054) approved by Mashhad University of Medical Sciences, Mashhad, Iran. The authors express gratitude to the Research Deputy for their financial support. They also appreciate respectable educational supervisors of the teaching hospitals in Mashhad as well as dear patients for their sincere collaboration.

Conflicts of Interest

No conflict of interest was declared.

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