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The assessment of a new information prescription service to patients with heart valve disease applying user's satisfaction study

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Abstract:

Background: The prescription of reliable information to patients is growingly considered as a remedial intervention in healthcare. The charter of patient right recognizes patients' right to information as a fundamental right. We offered health information "information prescription service (IPs)" to patients in SH. Madani teaching hospital and Shams hospital (Tabriz-Iran) from October 2010 to October 2011 to empower patients in their health care decision making and to take the library service into the practice field where users demand and need information rather than libraries physical space.

Objective: The objective of study was to find out patients' satisfaction about the physician-prescribed information prescription services (IPs) offered by librarians to patients, following a physician's prescription.

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Methods: A cross-sectional survey of 140 patients (74 men and 67 women) with heart valve diseases, admitted in two hospitals (Sh. Madani Heart teaching hospital and Shams hospital)Tabriz-Iran, was conducted using interview and structured questionnaire based on the patient satisfaction questionnaire (PSQ).The Chonbace's alpha and Kappa measures were used to test the reliability of questionnaire. A descriptive analysis, Chi- Square test and ANOVA were used to show the satisfaction of users (patients), the association between variables and proportion of satisfaction using SPSS Version 17.

Result: The average age of patients were +_ 14.93 ± 54.62 for male and ±13.93 53.75 for female. The result of the study showed that patients were satisfied with IPs, on the whole. The study found statistically significant association between the education and patients satisfaction with IPs but no significant relationship was found between the age and patients satisfaction with the relevance of information (P=0.02).

Conclusion: The study of users' satisfaction in order to promote the quality of information service is an efficient assessment method. It guarantees the efficacy of library service at the moment of care, where users need information rather than the library's physical space. Libraries are where users' need exists, therefore; offering service and assessing the quality of service need to take place everywhere not only limited to library's physical space.

Key Words: *physician-prescribed Information prescription; information prescription services (IPs), Library service, patients satisfaction*

Introduction

Information Prescription (IP) is the provision of specific evidence -based health information to a specific individual/patient to help him/her understand, manage and control the ill health. Information prescription pledges an active and informed participation of patient in healthcare process (Gavgani VZ,2012a). Information may be prescribed in three ways: physician prescription, system prescription, and patient prescription. In the most strongest form of information prescription service information is prescribed by a physician to a patient (Kemper-Mettler, 2002); in which IP may be filled by patient, system or by an information specialist (Gavgani VZ, 2009,2012). In this sense, it is one of the very effective roles (Gavgani VZ, 2009, 2011) and best practices of health library and information specialists. Information prescription is practiced in other countries (mostly developed countries like the UK and the US) through system prescription information therapy and or IP through governmental or

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non governmental bodies like (Medline Plus, 1998; National library of medicine's Information Rx program, 2002; Healthwise, 2002; NHS Choice, 2010). It was also accomplished on the bedside in the form of information intervention through control trials, cross-sectional studies and pilot programs (Beaudoin et al, 2011; Koonnce,2011; Oliver et al, 2011) with or without librarians direct collaboration. In developing countries, it is neither practiced formally through online systems nor in library services. A patient's need and preference survey in Iran revealed that patients need and demand for IPs (Gavgani VZ,2010; 2011), which led to a pilot program of IPs in few clinical and hospital settings (Gavgani VZ, 2012a).

This study was piloted to offer IPs as a hospital library information service by the physicians' prescription and approval in two governmental and nongovernmental hospitals, and then to assess the impact of service from the user's point of view.

Review of literatures

Although the patients' right to health and medical information, informed medical decision and having a treatment choice or preference have gained ample acceptance in medical community in theory there are variations and deviations in the quality and quantity of such service when it comes to the practice of delivering health information to patients. Providing patients with information is not a new issue but the prescription of information to patient and offering patient the exact, evidence based and personalized information are what a new patient- centered and evidence- based medical practice advocate and demand. A review of relevant literatures on Ovid SP, PubMed, Google scholar and related literature found few practice reports and controlled trials about IPs service to patient, in consequence, assessing the service through patients satisfaction with IPs were not found in the relevant literature. A study of patients with heart surgery in England revealed that patient has not received appropriate information about treatment choices, after operation life style, and medications (Abbasi NM, 2011). An audit of informed consent in surgical patients at a university hospital revealed that 38% of patients were kept uninformed about complications and side effects of operation (Siddinqui, & et al, 2010). A study of patient's perception of information in cancer during radiotherapy using a cross-sectional, single-centre study of 94 patients found that 37% of patients were very satisfied and 37% were moderately satisfied with information. It also revealed that 61% wished more

information. The study used EORTC QLQ-INFO26 module to assess the quality and quantity of information received by patients in the areas disease, medical tests, treatment, other services, different places of care and how to help themselves (Adler, et all,2009). The study did not evaluate the satisfaction of patients about the quantity (size) and quality of information. It only dealt with the subject of information offered to patients such as diseases, rehabilitation, and healthcare place and so on. It also did not offer evidence- based information or IPs, the quality of information and the process of providing information as well as the source of information have not been clearly stated in the methods of paper. A cross sectional survey of 457 pregnant women attending six urban and six rural antenatal clinics in the largest health division in The Gambia was undertaken about information which can be received in face to face consultation. The study used modified questionnaires from the WHO Safe Motherhood Needs Assessment kit. Most pregnant women (70.5%) said they spent 3 minutes or less with the antenatal care provider. The study described the frequency of subject covered by the information service and assessed the proportion of perception and recall among the rural and urban women.(Annya et al. ,2008). These studies were all conducted using cross sectional survey. But some other studies also were accomplished through randomized control trials. In a randomized trial, hypertensive emergency medicine patients received either standard care discharge instructions or discharge instructions in combination with an information prescription individualized to each patient's learning-style preference. Two weeks after the firstvisit, the study team assessed changes in hypertension knowledge via a survey. The study found no significant difference for changes in quiz scores on the hypertension knowledge assessment, though patients receiving the tailored information prescriptions reported higher levels of satisfaction with intervention materials (Koonce,2011).The evaluation of information prescriptions in two clinical environments (BrCa and NICU) on breast cancer patients were done to identify whether providing personalized information services by libraries can improve satisfaction with information services for specific types of patients. The findings of this study showed no statistically significant differences in satisfaction ratings between the treatment and control groups in BrCA patients. The IRx [information Rx] group in the NICU [the second environment] trial reported higher satisfaction than the control group (Oliver KB,2011). The strength of this study was due to information prescription service being delivered and assessed by the librarians. In totally e-health supported countries the IPs is usually offered through the internet, but not all over the world. Therefore IPs vary in content, accessibility and quality. An interesting study evaluated the sample of randomly selected IPs websites (one international and Five UK based) from

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patients perspective and also by two checklists designed to appraise the websites. The result of study showed that national IP websites score more highly than local IP websites, which are often weak on content for specific conditions and poorly designed but strong on signposting to local services. This shows that online IPs is not reliable and if they are prescribed by physicians and individualized by information specialists and targeted to patients they will be more reliable.

In Iran also there were some close to relevant studies, two of which dealt with patients' preference to receive information and to involve in decision making (Asghari F& et al. , 2006 ; Gavgani VZ.,2011). The latter one studied the patients information needs and preferences to receive IPs. Another study dealth with the preference of patients to receive information prescription through mobile phones and SMS service (Gavgani VZ, 2012 b). One of the studies also described an information prescription service offered to patients with coronary heart disease (Gavgani VZ, 2012a). This study clearly showed the process of IP service in non-wired countries. The IPs team adhered to standards in providing information and offering the service. The study did not assess the consumers' opinion about service; it has just claimed that both health providers and consumers were interested in continuity of IP service. The review of literature showed that despite studying the patients' preference and demand for IPs no study has already been conducted to assess the quality of IP service from patients' point of view or the impact of information prescription as remedial intervention in Iran. Therefore; the present study was conducted to bridge the gap of IPs and to assess this new information service presented by library and information specialists in collaboration with physicians to patients with heart valve disease. The main questions that this study tries to answer are as follows:

Did evidence- based information prescription service delivered by library and information specialist in collaboration with physicians affect the of patients' satisfaction with IPs?

Have IPs improved patients' knowledge about health issues and medications? Were IPs responsive and did they meet the information needs of patients? Were the size of information, its readability and understandability evaluated to be positive?

Methods:

This study was a cross sectional survey to assess patients' satisfaction about information prescription services (IPs) offered by library and information specialists. A number of 140 patients with heart valve diseases were hospitalized in two governmental and non- governmental hospitals

(Tabriz-Iran) received the IPs. Information was personalized and targeted to patients, following the physicians' prescription and order. Two weeks after the presentation of IPs we assessed the patients' satisfaction from the service using a structured and validated questionnaire. Information adopted from Medline Plus, a highly qualified patient information source provided by U.S.National Library of Medicine for Information Rx program and public benefits. We evaluated the final information with DISCERN criteria and changed the information according to the Information Prescription standards introduced by Kemper-Mettler (2002) before doctor's approval. The questionnaire was set in two sections: I) demographic data of patients and their precious case. II). Main questions according to the objectives of study with totally 10 queries to evaluate the satisfactory aspects of IP such as size of IP, reliability, responsiveness, ease and understandability. Questions set using Likert's scale with four points omitting the neutral (neither …nor) point to reduce bias. To evaluate the internal consistency of the structured questionnaire the measure of Cronbach's alpha was used. The reliability was assessed through test-retest reliability using kappa coefficient and proportion of agreement. We asked the opinion of a panel of 10 experts. For each question they were asked to score each question from 0 to 10 (minimum to maximum score) with the following criteria: relevance, necessity, transparency, understandability with marks. The Chrobach's alpha for each section of questionnaire with 0.79 to 0.83 were known valid. The median and standard division proportions 48.9_+ 5.5 and Chronbach's alpha 0.88 indicated that the overall validity of test is high and it is a reliable test. The descriptive analysis tests were used to analyze the data. The ANOVA and Chi Square tests also were used to test the association between the demographic variables and patients' satisfaction. The analysis was done using SPSS 17.

Findings of study

A) Demographic Data

It was important to determine the demographic information of patients as this information could lead to the identification of significant relationship between patient's capability to read, understand, use and their satisfaction with Information Prescription service (IPs). We assessed the age, gender, career and patient diagnosis and treatment history for demographic data.
A number of 140 patients with heart valve replacement received our new information service i.e. physician-prescribed information prescription delivery service.

The average age of patients were +_ 14.93 ± 54.62 for male and ±13.93 53.75 for female, the minimum age was 17 and maximum was 83. The majority of patients' were between 50-60 years old (Figure 1).

Figure 1 the histogram diagram for age of patients
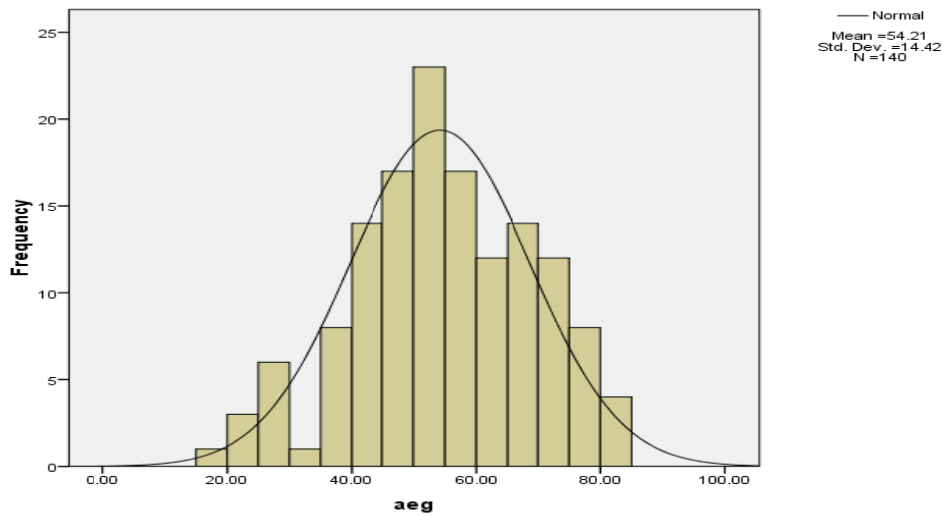
About %95.7 of patients stated that they have consulted IPs for their information needs and questions more than once. Number of 91 (65%) of patients had previous diagnosis and treatment history/record (figure 2).
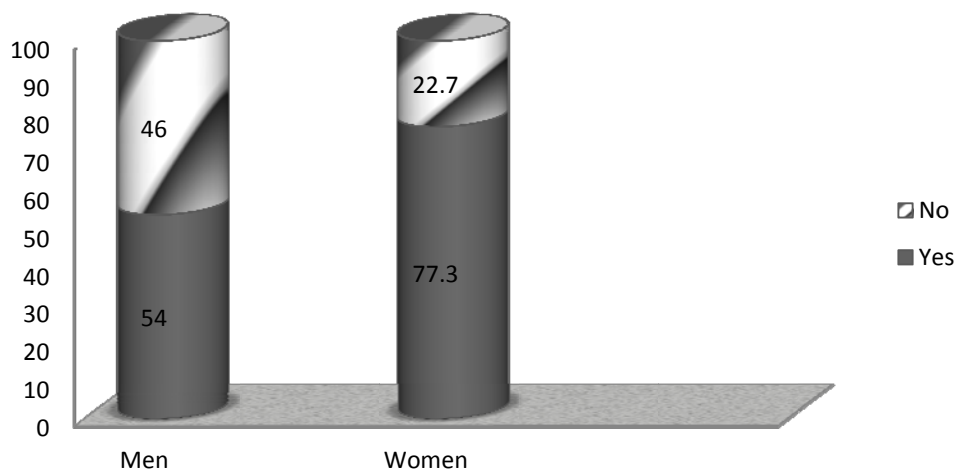

Figure 2   Do patients have previous diagnosis and treatment in their history?

According to the findings of study (figure 2) the proportion of women who had heart valve diagnosis and treatment record (77.3%) was more than the men (54%).

Educational level of patients

The level of education and literacy are of important factors in every patient education program specifically in a patient centered and patient involvement approach. Therefore; it was important to find out the level of education of patients and likely association between the perception of IP and the education. The following figure illustrates the education scatter of patients in this study.
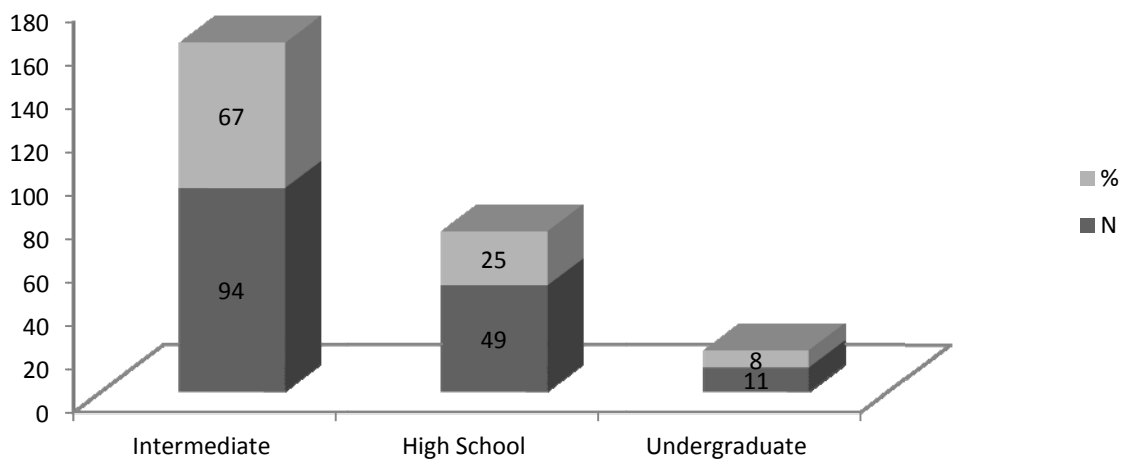

Figure 3   Educational level of patients

Out of total number of patients (140) the majority 94 (67%) held intermediate education level, 25% high school diploma and the minority (8%) had undergraduate license. The findings indicate that the level of education is low and the majority of patients do not hold even high school diploma. The number of patients holding an academic education is very less i.e. number of 11(8%).

Career

It has been proved by studies specially in psychological ones that career affects individual's behavior, life style , reading and studying habits. Therefore; the career was considered to be one of the most important demographic factors in this study.
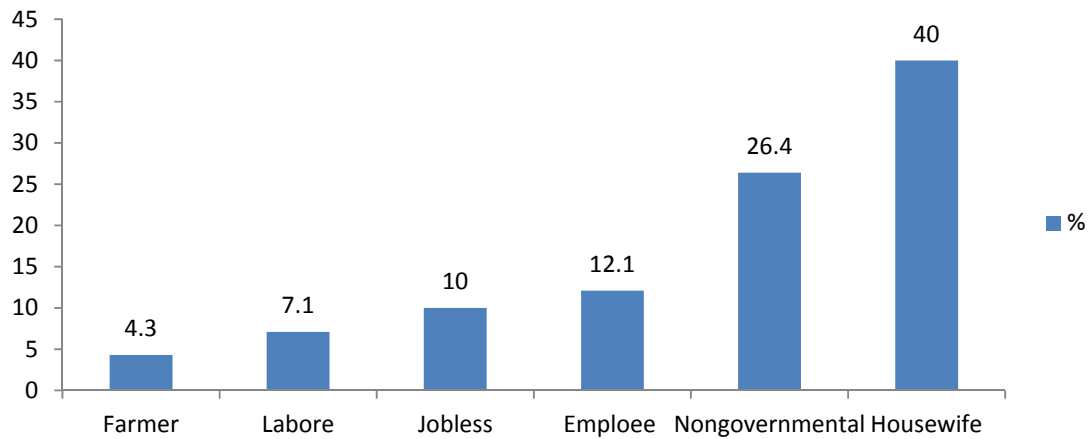
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Figure 4 patients' career

The findings of the study showed that the minority of patients had independent jobs like farming (4.3%), at the same time again the less percentage of patients were the employees of the governmental organizations and institutes in contrast; the majority of patients were housewives, nongovernmental employee (26.4%). It was also found that a considerable amount (10%) of patients with heart valve replacement were jobless.

B) Satisfaction assessment against the IPs

We assessed the overall satisfaction of patients with information presented through the IPs, by the identified criteria including the size of information, responsiveness, relevance, the ease and understandability of information embedded in the IP (Table 1).

Table 1 Overall patients' satisfaction with information presented in the IPs

Queries	Strongly Disagree	Disagree	Agree	Strongly Agree	Total
	N(%)	N(%)	N(%)	N(%)	N(%)
The size of the information is appropriate?	8 (5/7%)	29 (20/7%)	96 (68/6%)	7 (5/0%)	140 (100%)
Information (IP) is relevant to my health issue and meets my information needs	4 (2/9%)	29 (20/7%)	92 (65/7%)	15 (10/7%)	140 (100%)
Information (IP) meets my questions about prescribed medications (such as intake of drugs, calculation, dose, need to adhere to blood test…)	2 (1/4%)	14 (10/0%)	100 (71/4%)	24 (17/1%)	140 (100%)
Information (IP) is informative and improved my knowledge about my health issue	12 (8/6%)	23 (16/4%)	88 (62/9%)	17 (12/1%)	140 (100%)
Content of IP covers the information about drugs/ food interactions	6 (4/3%)	20 (14/3%)	93 (66/4%)	21 (15/0%)	140 (100%)
Information offered in IP is easy and understandable	0 (0%)	11 (7/9%)	113 (80/7)	16 (11/4%)	140 (100%)

The findings of the study showed that the majority of patients, 103 (73.6%) out of 140 were satisfied with the size of information and only 5.7% were dissatisfied. The supportive sub queries were the indicator of the content not being boring and its being adequate and appropriate in length and size.

It also found that the majority of patients 107(76.5%) were found the information relevant to their health issue and it has meet their information needs. Number of 124(88.5%) patients stated that the information offered in IPs have answered their questions about prescribed medications (such as intake of drugs, calculation, dose, need to adhere to blood test), and 113(81.4%) found that information about the interaction of drugs or foods were very much useful.

Again the majority 105 (75%) stated that IP has improved their knowledge about their health issue and its relevant subjects. About the easiness and understandability of IP, the majority of patients 129(92%) stated that IP was easy to understand. It can be inferred from the findings of study that although overall assessment showed that the majority of patients (users) had found the service satisfactory from

different points of views, however; the most satisfactory factor in this assessment was the IPs easiness and understandability.

Table 2   Association between age and satisfaction about IPs

P-Value	Strongly Disagree Median ± S.d.	Disagree Median ± S.d.	Agree Median ± S.d.	Strongly Agree Median ± S.d.	Age / Queries
P=0/000	60.3750 ± 11.4260	62.8276 12.69440±	51.7292 14.19524±	45.5714 11.26731	The size of information is appropriate?
P=0/204	±62.7500 11.98263	±56.4483 13.47640	±54.0978 15.11426	48.3333 10.82765±	Information (IP) is relevant to my health issue and meets my information needs.
P=0/008	± 57.0000 14.14214	±60.0714 10.76650	±55.4000 14.76756	±45.6250 11.79098	Information (IP) meets my questions about prescribed medications (such as intake of drugs, calculation, dose, need to adhere to blood test…)
P=0/002	±60.8333 10.83359	±58.4500 12.49200	±55.1828 14.70060	±44.0000 11.33137	Information (IP) is informative and improved my knowledge about my health issue
P=0/002	0	±65.6364 6.62228	±54.2832 14.86515	±45.8750 8.81571	Content of IP covers the information about drugs/food interactions

The study found statistically significant relationship between the age of patients and their satisfaction with size of information (P<1), medication support (P=0.008), responsiveness of information (P=0.002), improved knowledge (P=0.002), it also found that there is no significant relationship between age and relevancy of information (P=0.204).

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Table 3   Association between education and satisfaction with IPs

P-Value	Undergraduate		High School		Intermediate		Education Queries
	Disagree N(%)	Agree N(%)	Disagree N(%)	Agree N(%)	Disagree N(%)	Agree N(%)	
P=<0/005	0	11 (100%)	1 (2.9%)	33 (94.3%)	7 (7.4%)	59 (62.8%)	The size of information is appropriate?
P=>0/005	0 (0%)	11 (100%)	0 (0%)	30 (85.7%)	4 (4.3%)	66 (70.2%)	Information (IP) is relevant to my health issue and meets my information needs
P=>0/005	0 (0%)	11 (100%)	0 (0%)	33 (94.3%)	2 (2.1%)	80 (85.1%)	Information (IP) meets my questions about prescribed medications (such as intake of drugs, calculation, dose, need to adhere to blood test…)
P=<0/005	0 (0%)	11 (100%)	2 (5.7%)	31 (88.6%)	4 (4.3%)	72 (76.6%)	Information (IP) is informative and improved my knowledge about my health issue
P=<0/005	0 (0%)	11 (100%)	0 (0%)	34 (97.1%)	0 (0%)	84 (89.4%)	Content of IP covers the information about drugs/food interactions

The study found statistically significant relationship between the education and satisfaction with IPs in all of the identified points including the size of information, relevancy, and responsiveness, content of drug information and ease and understandability of information (P=0.005).

Discussion and conclusion

The main objective of this study was to pilot a physician-prescribed information prescription service (IPs) through library service and assess the performance of the service by the study of user's satisfaction. The service was offered through hospital library to patients with heart valve disease in two hospitals (specialty state hospital of Shahid Madani, and non-state hospital of Shams) in Tabriz city of Iran. The total number of patients who received the service was 140. The service was delivered to patients during hospitalization from October 2010 to October 2011. The result of the study showed that patients were satisfied with IPs, on the whole. The study found a statistically significant relationship between the age of patients and their satisfaction with the size of information, responsiveness, and easiness of information in IPs. But it did not find a significant relationship with the age and satisfaction about the relevance of information. This shows that there is no specific variation between patients' need for information and the stage of life. This is a significant finding and shows that "physician prescribed information prescription" considers the variation in specific information needs of consumers and its content is more personalized and specific than the "system prescribed IPs", as it was revealed by the comparative assessment of five national and local IPs' websites by Brewster (2011) in which "online IPs websites were often known weak on content for specific conditions". The study did not find statistically significant association between the gender and satisfaction of patients with heart valve disease about the IPs size, relevance, and understandability. Only in the medication related information there was a significant relation between the gender and satisfaction with the medication information, drug interaction , and side effects of medications (P=0.036) and it indicated that women are more satisfied with drug information than men. The study found significant association between the patients' educational level and their satisfaction with IPs. It can be inferred that as long as IPs concerns the education level and patients' literacy are known as an influential factor. According to the theory of information the more uncertainty the more entropy and the more entropy the more demand for information. The finding also shows that patients in all ages, genders, careers, education level have found the IPs easy to understand.

In conclusion, it can be said that this study provided the evidence that hospital libraries are the most appropriate place for delivering IPs. And the librarians play a significant role in providing and delivering IPs. If the library and information specialists are involved in the IPs the performance may

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be increased. In other words, collaboration between Physicians and the library and information specialists guarantees the performance of IPs and brings more satisfaction with IPs. It also can be said that a physician-prescribed IPs is much more reliable than the system-prescribed IPs.

This study suggests that the information prescription service must be included in the medical librarianships curriculum as well as in the curriculum of medical education. This study also showed that IPs is one of the library services and it is segregated from libraries' physical place and it can be delivered everywhere and every time and it can be more effective and efficient by the knowledge and expertise of librarians.

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