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Assessment of Organizational Health Literacy in a Group of Public, Private and University Hospitals in Istanbul

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ABSTRACT

The aim of our study was to investigate and compare organizational health literacy in a group of public, private and university hospitals in Istanbul.

This cross-sectional study was conducted in a group of hospitals (n=30) in Istanbul, Turkey. An Organizational Health Literacy Observation (OHLO) form was filled for each of the 30 hospitals (10 public, 10 university and 10 private hospitals) by researchers. Six managers from each hospital (n=180) filled the Turkish version of The Health Literate Health Care Organization 10 item Questionnaire (HLHO-10) during face-to-face

OHLO and HLHO-10 scores were highest in private hospitals and lowest in university hospitals, but the difference between the hospitals was not statistically significant. ($p = 0.18$ and $p = 0.45$ respectively). There was a positive correlation between observation (OHLO) scores and manager evaluation (HLHO-10) scores in private hospitals and this correlation is statistically significant ($r = 0.668$, $p = 0.035$). There was a negative correlation in the public and university hospitals. However, the correlation coefficient was not statistically significant ($r = 0.310$, $p = 0.384$ and $r = 0.118$, $p = 0.746$

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respectively). According to mean scores of HLHO-10 items, “Provide access” has the highest score. “Integration”, “High-risk” and “Costs” followed this item. “Provide Access” has the highest score in both university and public hospitals and “Costs” got the highest score in private hospitals. When the differences between hospitals for each item of the HLHO-10 are analyzed, the “Health literacy skills range” and “Costs” items were found to be statistically significant (“p” values = 0.011 and 0.018 respectively). Post hoc analyses indicated that there was a significant difference between public and private hospitals for the “Health literacy skills range” item while the difference between university and private hospitals was significant for the “Costs” item. Private hospitals got the highest and university hospitals the lowest mean scores for both of the OHLO and HLHO-10 questionnaires. The high literacy of the public hospitals for individualized health information and the private hospitals’ about out-of-pocket payments are normal and expected findings.

Keywords: Organizational health literacy, HLHO-10, hospital

INTRODUCTION

Health literacy has become an important issue in healthcare systems because of its relations with the utilization, effectiveness and efficiency of healthcare services. Findings of various studies suggest that the level of health literacy of the individuals is associated with better health outcomes (Aboumatar et. al., 2013; Kaphingst et. al., 2014,) and decreased health expenditures (Hardie et. al., 2011; Koh et. al. 2012).

People with low level of health literacy are at greater risk for chronic diseases and are known to have a higher rate of hospital admissions (Charet, 2010; DeWalt et. al., 2010; Volandes and Paasche-Orlow, 2007), more serious medication errors (Schillinger et. al., 2005), worse preventive care and health outcomes for their children (Sanders et. al., 2009), and increased mortality (Bostock and Steptoe; 2012; Sudore et. al., 2006) compared with individuals with adequate health literacy.

Health literacy at individual level is defined as “people’s knowledge, motivation and competences to access, understand, appraise, and apply health information to make judgements and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve

quality of life during the life course." (Sorensen et. al., 2012).

There is now a growing recognition that health literacy is not just individual responsibility but also that health institutions and the health system have an important and critical role in it. Health literacy is the product of individuals' capacities and the health literacy-related demands and complexities of the healthcare system (Baker, 2006). The effectiveness and efficiency of services are influenced by the interactions between individuals and the healthcare organizations that provide the service. So, the demands and complexities of the healthcare system have also important role besides individual skills and abilities (Hernandez, 2012; Palumbo and Annarumma, 2014). Health institutions and hospitals differ in their structures and layouts. These differences indicate that each institution has its own language. Signs, symbols, directions and written documents are usually prepared under the influence of medical language and sometimes they may be incomprehensible for ordinary people. They may be user-friendly in some cases but important barriers in others. It is important that organizations providing services should be designed according to the individuals' needs and facilitate access as well as individuals knowing how to search for, find and use which health service they need. Therefore, organizational health literacy has become an important issue in recent years due to its impact on the correct use of health services.

Organizational health literacy is defined as "the ability of health institutions to provide clear services and information for all those seeking services to find and understand, and to assist them in decisions they make, and to eliminate existing barriers in these issues" (Brach et. al., 2012, p. 12-18; CDC, 2017). The abilities and characteristics of the organization should be independent of the individual's level of health literacy. Regulations made within health institutions should target people with poor health literacy. A health literate organization should have the ability to help individuals in the best possible way to reach, understand and use services and information in spite of their differences in literacy levels (Schillinger and Keller, 2011). Health services and regulations such as the physical structure, the website, signs, directions, writings in the institution should be arranged in such a way that each individual can easily understand and access them.

Brach et al. defined Health Literate Health Organizations (HLHOs) as

healthcare organizations that "make it easier for people to navigate, understand, and use information and services to take care of their health" (Brach et. al., 2012). The term health literate organization describes organizations that can make patient navigation easier and anticipate and meet the needs of all patients notwithstanding their level of health literacy (Schillinger and Keller, 2011).

Ten attributes of health literate health care organizations were proposed as following by a group of experts during a roundtable discussion in 2012 (Brach et. al., 2012):

1. Has leadership that makes health literacy integral to its mission, structure, and operations
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement
3. Prepares the workforce to be health literate and monitors progress
4. Includes populations served in the design, implementation, and evaluation of health information and services
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact
7. Provides easy access to health information and services and navigation assistance
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines
10. Communicates clearly what health plans cover and what individuals will have to pay for services

Kowalski et al. used these attributes to measure the health literacy level of healthcare organizations and developed the Health Literate Health Organizations 10 item questionnaire (HLHO-10) as an assessment tool. The questionnaire HLHO-10 was found to be a reliable and valid instrument for assessing the health literacy of health care organizations (Kowalski et. al.,

2015). In Turkey there are several studies on individual health literacy, but organizational health literacy is a relatively new concept. Our study aimed to investigate and compare the organizational health literacy level of a group of Turkish hospitals using the HLHO-10 questionnaire.

METHODS

This cross-sectional study was conducted in a group of hospitals (n=30) in Istanbul, Turkey. Data were collected between February and July 2017 in two stages.

In the first stage, an Organizational Health Literacy Observation form was filled for each of the 30 hospitals (10 public, 10 university and 10 private hospitals). All of the hospitals were selected randomly among the accredited hospitals in Istanbul. In the second stage, six managers from each hospital (n=180) filled in the Turkish version of The Health Literate Health Care Organization 10 item Questionnaire (HLHO-10) during face-to-face interviews. Managers were selected from various departments that are supposed to be associated with organizational health literacy of the hospitals such as the Hospital Administrative Director, Hospital Medical Director/Chief Physician, Deputy Chief Physician, Quality Department Director, Health Care Services Director, and R&D Director.

DATA COLLECTION AND ANALYSIS

Organizational Health Literacy Observation (OHLO) form: This form was prepared by modification of The Health Literacy Environment of Hospitals and Health Centers guide of Harvard University (Rudd and Andersen, 2006). In the form, there are questions to evaluate hospitals' communication systems such as their call center and website, as well as how user-friendly and health literate their indoor are. The contact information of the hospitals was assessed, and the level of organizational health literacy was examined through a short tour in each hospital. A detailed examination of organizational health literacy could not be conducted because there was a permission problem in reviewing documents used in the hospitals and interviewing relevant staff. Therefore, hospitals were only assessed through observations. Findings from the observations were scored, and an organizational health literacy observation

score was calculated for each hospital. Scores ranged from 10 to 40 where high scores indicated a high level of health literacy.

The Health Literate Health Care Organization 10 item Questionnaire (HLHO-10): The HLHO-10 questions were adapted from a recent survey titled the Health-Literate Healthcare Organization 10 Item Questionnaire (Kowalski et. al., 2015).

The questionnaire was adapted into Turkish following translation and reverse translation by two translators. Two health management academics and a public health specialist assessed its content validity. In the questionnaire, managers were asked to evaluate regulations regarding leadership, integration, the inclusion of the served, health literacy skills range, communication standards, provision of access, media variety, information about high-risk situations, costs and training of the workforce. Each of the items was answered on a seven-point scale ranging from "1-not at all" to "7-to a very large extent". Data were collected from 180 managers from 30 hospitals. The internal consistency of the HLHO-10 was found to be high (Cronbach $\alpha = 0.916$ for all hospitals, 0.917 for university hospitals, 0.951 for private hospitals and 0.856 for public hospitals).

Trained interviewers collected all of the study data. SPSS 23.0 was used for data analysis and statistical evaluation. Data were summarized by means, standard deviations, and percentages. T-test, ANOVA, Chi-Square and Mann-Whitney U Test were used for the comparison among groups and values of p less than 0.05 were accepted as significant. Post hoc analysis of significant differences in the outputs of the ANOVA test was assessed by the Tukey test. Pearson Correlation Analysis examined the associations between different variables.

Ethical approval for the study was taken from Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee.

FINDINGS

Organizational Health Literacy Observations (OHLO) were conducted in 30 hospitals. Six managers from each hospital (n=180) filled in the HLHO-10 questionnaire during face-to-face interviews. The mean values of the OHLO scores and the HLHO-10 scores according to the hospitals are presented in Table 1.

Table 1: Organizational Health Literacy Observation (OHLO) scores and HLHO-10 scores according to hospital types

Hospital Types	**OHLO scores Mean ± SD**	**HLHO-10 scores Mean ± SD**
University	32.10±8.13	47.40±2.78
Public	34.20±2.74	51.30±1.59
Private	36.50±2.79	51.80±3.36
Total	34.26±5.34	50.16 ± 8,42
	F=1.78 p=0.18	F=0.80 p=0.45

As it is seen from the table, OHLO scores were highest in private hospitals and lowest in university hospitals, but the difference between the hospitals was not statistically significant (F=1.78, p=0.18). Similarly, in these hospitals, the mean score of the HLHO-10 was found to be the highest in private hospitals and the lowest in university hospitals, but again the differences between hospitals were not statistically significant (F = 0.80, p = 0.45).

Table 2 presents the results of the correlation analysis between OHLO scores and HLHO-10 scores of the hospitals.

Table 2: Correlations between OHLO scores and HLHO-10 scores according to hospital types

University Hospitals:		HLHO-10 scores
OHLO scores	r	-0.310
	p	0.384
	n	10
Public Hospitals:		HLHO-10 scores
OHLO scores	r	-0.118
	p	0.746
	n	10
Private Hospitals:		HLHO-10 scores
OHLO scores	r	0.668
	p	0.035
	n	10

There was a negative correlation between observation (OHLO) scores and manager evaluation (HLHO-10) scores in university hospitals and public hospitals. However, the correlation coefficient was not statistically significant. (r=-0.310, p=0.384 and r=-0.118, p=0.746 respectively). In the private

hospitals, a positive and statistically significant correlation was found between OHLO and HLHO-10 scores ($r = 0.668$, $p < 0.05$).

Table 3 shows the means of the responses given to HLHO-10 items by all hospital managers to assess the organizational health literacy.

Table 3: Mean scores of HLHO-10 items in all hospitals

Patients have varying levels of health literacy. Health literacy is the ability to find, understand and put health information into practice. The following statements relate to measures at your hospital, which consider and promote the health literacy answering the questions. Please assess your hospital with each question on a scale of your patients. Please think about your hospital in from 1 'absolutely not' to 7 'to a very large extent'.		
To what extent?	**Score**	
	Mean	**SD**
1- …is the management at your hospital explicitly dedicated to the subject of health literacy (e.g. mission statement, human resources planning)? **(leadership)**	5.02	1.62
2- …is the topic of health literacy considered in quality management measures at your hospital? **(integration)**	5.37	1.53
3- …is health information at your hospital developed by involving patients? **(inclusion of the served)**	4.64	1.63
4- …is individualized health information used at your hospital (e.g. different languages, print sizes, braille)? **(health literacy skills range)**	4.82	2.01
5- …are there communication standards at your hospital which ensure that patients truly understand the necessary information (e.g. translators, allowing pauses for reflection, calling with further queries)? **(communication standards)**	4.98	1.99
6- …are efforts made to ensure that patients can find their way at your hospital without any problems (e.g. direction signs, information staff)? **(provide access)**	5.67	1.47
7- …is information made available to different patients via different media at your hospital (e.g. three-dimensional models, DVDs, picture stories)? **(media variety)**	4.17	1.71
8- …is it ensured that the patients have truly understood everything, particularly in critical situations (e.g. medication, surgical consent), at your hospital? **(high-risk)**	5.31	1.51
9- …do you communicate openly and comprehensibly at your hospital to your patients in advance about the costs which they themselves have to pay for treatment (e.g. out-of-pocket payments)? **(costs)**	5.31	1.68
10- …are employees at your hospital trained on the topic of health literacy? **(workforce)**	4.76	1.66

As shown in the table, "Provide access" assessed by the item "... are efforts made to ensure that patients can find their way at your hospital without any problems?" has the highest score. The "Integration", "High-risk" and "Costs"

items followed this item.

Mean HLHO-10 item scores according to the hospital types are presented in Table 4.

Table 4: Distribution of HLHO-10 item scores according to hospital types

HLHO-10 items	University (n=60)	Private (n=60)	Public (n=60)	F	p
	Mean ± SD	Mean ± SD	Mean ± SD		
1-Leadership	4.77± 1.70	5.28 ± 1.76	5.02 ± 1.37	1.528	.220
2-Integration	5.25 ± 1.47	5.48 ± 1.67	5.37 ± 1.46	.346	.708
3-Inclusion of served	4.37 ± 1.49	4.95 ± 1.55	4.62 ± 1.80	1.948	.146
4-Health literacy skills range	4.83 ± 1.95	4.30 ± 2.05	5.33 ± 1.93	4.085	.018
5-Communication standards	4.78 ± 1.92	5.40 ± 1.99	4.77 ± 2.03	1.990	.140
6-Provide access	5.40 ± 1.57	5.67 ± 1.59	5.93 ± 1.18	2.001	.138
7-Media variety	3.78 ± 1.70	4.38 ± 1.73	4.35 ± 1.65	2.368	.097
8-High risk	5.00 ± 1.44	5.58 ± 1.67	5.35 ± 1.39	2.287	.105
9-Costs	4.85 ± 1.77	5.77 ± 1.59	5.32 ± 1.59	4.616	.011
10-Workforce	4.27 ± 1.50	4.98 ± 1.72	5.02 ± 1.66	4.042	.019

As it is seen from Table 4, the "Provide Access" item has the highest score in both university and public hospitals and "Costs" got the highest score in private hospitals. When the differences between hospitals for each item of the HLHO-10 are analyzed, three items were found to be statistically significant: "Health literacy skills range", "Costs" and "Workforce" ("p" values: 0.011, 0.018 and 0.019 respectively). Post hoc analyses indicated that there was a significant difference between public and private hospitals for the "health literacy skills range" item while the difference between university and private hospitals was significant for the "Costs" item. The differences for the mean score of the item "Workforce" was statistically significant between university hospitals and public hospitals and also university hospitals and private hospitals, where university hospitals had the lowest score.

RESULTS AND CONCLUSION

In this study, we investigated the organizational health literacy levels of 30 hospitals in Istanbul through two different assessment tools: the Organizational

Health Literacy Observation (OHLO) form and the HLHO-10 questionnaire. The Turkish version of HLHO-10 had a high internal consistency (Cronbach's alpha= 0.916) and content validity.

Criteria validity of the HLHO-10 could not be evaluated due to the lack of a gold standard. Private hospitals got the highest, and university hospitals the lowest mean scores for both of the OHLO and HLHO-10 questionnaire. However, there were no statistically significant differences between the three groups of hospitals. The scores of both methods were significantly correlated in private hospitals but not in public and university hospitals. This result may be due to the differences between the physical structures of the hospitals. Some of the public and university hospital buildings had been constructed and used for different purposes previously, such as shopping malls and business halls, which was problematic regarding physical structure and utilization as a hospital. The unwillingness of the public hospital managers towards the study was another factor that might have influenced the quality of the data. However, we conclude that the Turkish version of the HLHO-10 may be used as a reliable and valid measurement for assessment of organizational health literacy at least in private hospitals.

When the distribution of answers to the items of HLHO-10 was examined regarding hospitals, it was seen that item "Accessibility" had the highest score in both university and public hospitals. The item that got the highest score in private hospitals was the "Cost". Kowalski et al., who developed the measurement tool, used and showed its validity and reliability in Breast Cancer Treatment Centers in Germany, found that answers which got the highest score was "High-risk" and then the "Cost" and "Accessibility", contrary to our study (Kowalski et. al., 2015). The lowest scores in the same study were answers given to questions related to "health literacy skills range" and "Inclusion of served ". In our study, "media variety" had the lowest score and it was followed by "Inclusion of served".

Mean scores of three items of HLHO-10 were significantly different between hospital groups. These items were: communication with the patients about the out-of-pocket payments ("costs") (p=0.011), use of individualized health information ("health literacy skills range") (p=0.018) and training of the employees about health literacy ("workforce"). Public hospitals had the highest

score for "health literacy skills range", private hospitals had the highest score for "costs", and university hospitals had significantly lower scores for "workforce". We conclude that the high literacy of the public hospitals for individualized health information and the private hospitals' about out-of-pocket payments are normal and expected findings. However, the lowest score of the university hospitals for the training of the employees about health literacy was not an expected result, since universities are institutions for education and training.

Studies on organizational health literacy in our country are very limited. Existing studies are focused on measuring individual health literacy and developing measurement methods for this purpose. How organizational health literacy will be implemented and how it will achieve its goals needs to be addressed systematically and to be regulated if necessary. The things to be done to achieve these goals are summarized under three headings (Briglia et. al., 2015):

1. To find a leadership to support health literacy
2. To have an effective health literacy vision throughout the organization
3. To ensure continuous training and supervision of all staffs on this topic

RECOMMENDATIONS

According to the results of this study, our suggestions are as follows:

- There is a need to raise awareness of individual and organizational health literacy for all personnel, especially managers in hospitals providing health services, and to organize appropriate trainings for this purpose.
- A participatory process should be developed where the views of patients and their relatives will be included in the regulations to be made related to organizational health literacy.
- The Turkish version of the HLHO-10 is a good assessment tool with high internal consistency and may be used at least by private hospital managers for monitoring organizational health literacy.
- Health policies related to organizational health literacy should be developed and considered as an important quality improvement criterion by the Ministry of Health.

LIMITATIONS OF THE STUDY

It is not correct to make conclusions about determinants of the organizational health literacy due to the cross-sectional nature of our study. The lack of a gold standard for assessment of organizational health literacy and the unwillingness of public hospital managers to participate in the study are the major reasons that limit the validity of the findings.

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PDB ID Codes: Include the PDB ID codes with assigned compound Arabic number. Include the statement "Authors will release the atomic coordinates and experimental data upon article publication."

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Active compounds obtained from combinatorial syntheses should be resynthesized and retested to verify that the biology conforms to the initial observation. Statistical limits (statistical significance) for the biological data are usually required. If statistical limits cannot be provided, the number of determinations and some indication of the variability and reliability of the results should be given. References to statistical methods of calculation should be included.

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