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HEALTH LITERACY AND HEALTH CARE UTILIZATION PATTERNS IN MIDDLE AGE ADULTS IN PAKISTAN

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ABSTRACT

OBJECTIVES: No practical and theoretical pattern for identifying health literacy and its utilization patterns exist. Health literacy is referring to the ability to read and perform numerical tasks[1]. This study's objective was to recognize useful clinically questions that might be effective for the identification of marginal and inadequate health literacy in adults.

MATERIAL AND METHODS: In person interviews from a sample of n=332 middle age adults (28-40years) completed. A 5 point likert scale questionnaire include 16 literacy screening questions administered, followed by a validated health measure, the Short Test of Functional Health Literacy in Adults (STOHFLA). Grounded on the STOHFLA men were categorized as having inadequate, marginal, and adequate health literacy. Health care utilization pattern were identified in a separate questionnaire through 10 close ended questions.

RESULTS: Inadequate health literacy accounts for 42%, marginal health literacy 14% and adequate health literacy for 44% of the participants. 23% of the participants do not go to visit the hospital and doctor in minor health related issues. 29% of the participants use over the counter drugs, and only 48% of the participants visit health facilities (Community Health Center, BHU, RHCs, THQ, DHQ) for their health related issues.

CONCLUSION: Health literacy and health care utilization are not so common in middle age adults in Pakistan. The need of health literacy must be addressed in middle age adults, and it is possible when the health care facilities are fully utilized.

KEYWORDS: Health Literacy, Healthcare Utilization, Community Health Center, Basic health Unit, Rural Health Center.

INTRODUCTION

There has been little systematic attempt to examine the relationship between health literacy and health care utilization pattern, or even to relate health literacy to the health. Literature presents significant challenges, at least in developing countries. Studies suggest that it is timely to consider a similar approach to health literacy.

Debate continues about what "health literacy" actually means; whether the term refers only to patient oriented knowledge and skills in health care settings, or "medical literacy", or whether it also encompasses health-related knowledge applicable to everyday life. The broader concept involves:

the ability to make sound health decisions in the context of every day life at home, in the community, at the workplace, in the health care system, the marketplace and the political arena. It is a critical empowerment strategy to increase people's control over their health, their ability to seek out information and their ability to take responsibility[1].

Health literacy is the ability to do basic reading and perform numerical tasks required to function in the health settings[2]. Research studies

have shown positive association between limited health literacy and worse health outcomes such as lower utilization of health[3,4]services, medication non adherence, and higher hospitalization rates[5,6,7]. In United States there is one third of English spoken patients had health literacy[3,4]. Studies have shown positive association between limited health literacy and worse health outcomes, like limited use of preventive services, increase hospitalization, poor self-reported health and medication non adherence[5, 7]. The ability to identify the health literacy of patient problem is important for health care providers who want to overcome the negative effects of little health literacy. This study's objective was to recognize clinically useful questions that might be effective for the identifying of marginal and inadequate health literacy in adults.The Short Test of Functional Health Literacy in Adults (STOFHLA)was used as a data collection tool.

MATERIAL AND METHODS

The study was conducted on n=332 patients in Khyber Teaching Hospital medical and Surgical OPDs, Khyber Pakhtunkhwa (KP) Peshawar. Patients were asked by a clinic nurse whether they are willing to ask the investigator that patient written information is useful. After obtaining informed consent, in person interviews have been taken and patients were asked 16 questions. The STOFHLA was scored by separate researcher later on, to ensure that the investigators were blind to the health literacy of the patients. We excluded patients who were unable to complete the interview because they were too ill to participate, having cognitive impairment, or having psychiatric disease.We selected the content of questions based on five domains identified in a qualitative study of patients with limited health literacy: navigating the health care system, completing medical forms, following medication instructions, interacting with providers, and reading appointment slips (Appendix 01).

We present the AUROCs and 95% CI for the screening questions that had point estimates for their AUROCs significantly greater than the null value of 0.5, as judged by a 95% CI that excluded 0.5. To select the optimal individual question(s) or combination of questions, we identified the one question with the highest AUROC and compared that to the AUROC for all other question(s) or combination of questions, taking into account the correlations of AUROC from the same population. Because we were interested in the predictive value of these questions and not issues related to causation, we did not adjust for confounders in our analysis. Analyses were conducted using STATA SE-7.0 (Stata Statistical Software: Release and Excel).
We evaluated each of the 16 questions against 02 standard comparisons: (1) inadequate health literacy (STOFHLA score of 0–16) and (2) adequate or marginal health literacy (STOFHLA score of 0–22). Scores on the STOFHLA range from zero to 36.The STOFHLA is a 36-item reading assessment tool that took approximately 07 minutes to administer.[7] Patients were categorized into three mutually exclusive groups: inadequate, marginal, or adequate health literacy groups. Individuals with scores of 0–16 were not able to read the simplest things, like prescription on bottles and appointment paper (inadequate health literacy). Patients achieving score17–22 did better the simplest tasks but have trouble in comprehending more complicated readings such as instructions for a radiographic procedure or educational pamphlets (marginal health literacy). Individuals who score 23–36 successfully completed majority of the tasks to be functional in a health care setting (adequate health literacy). In questionnaire three of the screening questions, "How often do you have someone help you read hospital materials?" "How confident are you filling out medical forms by yourself?" and "How often do you have problems learning about your medical condition because of difficulty understanding written information?" were effective in detecting inadequate health literacy. These questions were weaker for identifying patients with marginal health literacy.

We compared individual screening questions to the interview comparison standards and computed sensitivity, specificity, and positive and negative likelihood ratio (LR) with 95% confidence interval (CI) [9]. Positive and negative LRs allowed for simultaneous evaluation of the sensitivity and specificity at each threshold. For positive screening results, positive LR times were multiplied to the pretest odds of a disease to get the posttest odds; and similarly it was done for the negative screening results[9].

RESULTS

Almost 400 patients were scheduled for interview during our study period, 376 agreed to signed consent, gave time and interviewed. Twenty Four of the participants were excluded because of not meeting the inclusive criteria, and one was excluded due tomental health illness. Out of the 376 eligible participants, 19 refused to participate later on, and the remaining 332 participated in the whole study. Prevalence rates were calculated for the 332 participants to find the inadequate and marginal health literacy through the STOFHLA were 42% and 14%, respectively (Table 1).

TABLE 01: DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS

		N=332	%
Age, years			
	18-45	73	21
	45-64	153	46
	65+	106	31
Gender			
	Men	297	89
	Women	35	10
Region			
	Urban	253	76
	Rural	79	23
Income			
	<20,000Rs	168	50
	20,000-39,000Rs	104	31
	40,000Rs+	30	9
	Did not Know/refuses	30	9
Education			
	Primary	69	20
	Middle	76	22
	Secondary	107	32
	Higher Secondary	41	12
	Degree	39	11
Working Status			
	Working Full time	121	36
	Working Part time	109	32
	Retired	34	10
	Disabled	17	05
	Currently not working	51	15
Higher Literacy Level*			
	Adequate	145	44
	Marginal	45	14
	Inadequate	142	42

**Health literacy level based on STOFHLA (Short Test of Functional Health Literacy in Adults) score: inadequate health literacy (0–16), marginal health literacy (17–22), and adequate health literacy (23–36).*

Detecting Inadequate Health Literacy

Seven of the 16 questions had an AUROC greater than 0.5 and 95% CI that excluded 0.5 for detecting inadequate health literacy (Table 2). To identifying inadequate health literacy, the question, "How often do you have someone help you read hospital materials?" had a significantly higher AUROC of 0.86 (95% CI=0.78–0.96) as compared to all other questions (P<.05) except for "How confident are you filling out medical forms by yourself?" and "How often do you have problems learning about your medical condition because of difficulty of understanding written information?" with AUROCs of 0.79 (95% CI=0.67–0.93), and 0.79 (95% CI=0.62–0.90), respectively (Table 02).

TABLE 02: AREA UNDER THE RECEIVER OPERATING CHARACTERISTIC FOR THE HEALTH LITERACY SCREENING QUESTIONS.

Health Literacy Screening Questions	Inadequate health Literacy	Adequate or Marginal health literacy
How often are appointment slips written in a way that is easy to read and understand?	0.67 (0.49–0.83)	0.59 (0.54–0.69)
How often are medical forms difficult to understand and fill out?	0.59 (0.53–0.79)	0.62 (0.54–0.76)
How often do you have difficulty understanding written information your health care provider gives you?	0.63 (0.51–0.86)	0.63 (0.59–0.71)
How often do you have problems learning about your medical condition because of difficulty understanding written information?	0.79(0.56–0.92)	0.66(0.57–0.71)
How confident are you filling out medical forms by yourself?	0.79 (0.59–0.89)	0.64 (0.51–0.69)
How confident do you feel you are able to follow the instructions on the label of a medication bottle?	0.73 (0.53–0.86)	0.61 (0.57–0.77)
How often do you have someone help you read hospital materials?	0.86 (0.74–0.94)	0.68 (0.61–0.79)

Health literacy level based on STOFHLA (Short Test of Functional Health Literacy in Adults) score: inadequate health literacy (0–16), marginal healthliteracy (17–22), and adequate health literacy (23–36).

DISCUSSION

To our knowledge, this is the first study of screening questions that were effective for identifying patients with inadequate health literacy in KP, Pakistan. However, for identification of the broader group of patients with inadequate and marginal health literacy, these questions seem to be weaker.

This study has several limitations. First, our sample was comprised predominantly of the province KP in Pakistan population. Therefore, our results may not be generalizable. Second, our sample size was too small to determine whether one of the three questions performed significantly better and whether these questions performed significantly better than self-reported literacy. Third, we have not informed the participants that this study is to identify their health literacy; participants with poor literacy then may have avoided participation. Finally, the nature of the study with multiple comparisons may have increased the likelihood of a Type I error. Future studies are needed to validate our findings.

Despite these limitations, the findings of this study are important to identify that a single question can find 80% of adult patients with inadequate health literacy. Walliam et al mentioned simple questions to identify health literacy rate, if they are able to read newspaper, read hospital forms, prescriptions, charts, or help someone to read hospital material[2].

Studies are needed to determine the optimum level of health literacy in different population and health care settings with different prevalence rate of health literacy. Although the prevalence of inadequate health literacyin this study is high and the consequencesof inadequate health literacy in the preoperative settings are important[10]. Patients with inadequate health literacy may be at risk of non adherence to preoperative instructions, leading to increased morbidity, delays in surgery, or surgery cancellations that are costly to the patient and the hospital. A single question that can quickly identify patients with inadequate health literacy will help the health care professionals to make necessary arrangement for the patient in providing teaching material, risks and benefits of procedure and other important information in time.

The three screening questions were not as effective for distinguishing patients with marginal health literacy. Patients with marginal health literacy may not recognizethat they have reading difficulties and may be less likely to use coping strategies such as a surrogate reader[10].

CONCLUSION

It is concluded that each of these three screening questions appears to be useful for detecting inadequate health literacy in a KP (Pashtoon) population. Although our findings need to be confirmed in other populations, we believe that this is an important advancement towards developing a practical method for identifying patients with inadequate health literacy in busy clinical or research settings.

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Appendix 01

TOOL: SHORT TEST OF FUNCTIONAL HEALTH LITERACY IN ADULTS (STOHFLA)

All 16 Health Literacy Screening Questions

1. How often are appointment slips written in a way that is easy to read and understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
2. How often are medical forms written in a way that is easy to read and understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
3. How often are medication labels written in a way that is easy to read and understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
4. How often are patient educational materials written in a way that is easy to read and understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
5. How often are hospital or clinic signs difficult to understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
6. How often are appointment slips difficult to understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
7. How often are medical forms difficult to understand and fill out?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
8. How often are directions on medication bottles difficult to understand?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
9. How often do you have difficulty to understand written information your health care provider (like a doctor, nurse, nurse practitioner) gives you?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
10. How often do you have problems getting to your clinic appointments at the right time because of difficulty understanding written instructions?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never

11. How often do you have problems completing medical forms because of difficulty understanding the instructions?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
12. How often do you have problems learning about your medical condition because of difficulty understanding written information?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
13. How often do you unsure on how to take your medication correctly because of problems understand written instructions on the bottle label?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
14. How confident are you filling out medical forms by yourself?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
15. How confident do you feel you are able to follow the instructions on the label of a medication bottle?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never
16. How often do you have someone (like a family member, friend, hospital/clinic worker, or caregiver) help you read hospital materials?
(1) Always (2) Often (3) Sometimes (4) Occasionally (5) Never

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