Assessing Health Literacy among Health Science Students in a Coastal Town of Southern India – A Cross-Sectional Study

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Abstract

Background: Health literacy refers to the knowledge and competencies of persons to meet the complex demands of health in modern society**.** Healthcare professionals play an essential role in helping patients to obtain and understand health information. It is important to assess the health literacy of students of health science professions as they can contribute to enhancing the health literacy of the communities in the future. **Objective:** The study aimed to measure the levels of health literacy among students attending different health-related courses in a university situated in the coastal town of southern India using the HLS-EU-Q16 (Health Literacy Survey-European Union). **Methods:** A cross-sectional study using a self-administered health literacy survey in google forms questionnaire was conducted among 812 students enrolled among various health-related courses of which 770 students were taken for final analysis. The index scores were recoded into four health literacy categories as follows (according to thresholds established by the HLS-EU consortium): excellent (>42-50); sufficient (>33-42); problematic (>25-33); and inadequate (0-25). **Key Results:** The overall average health literacy score was 31.3 ± 4.4, which indicates that health literacy among the students was limited. The average health literacy score of the students of the medical college, dental college, and allied health sciences (AHS) was 32.8, 32.4 and 30.7, respectively, indicating sufficient health literacy among the different courses individually. **Conclusion:** The level of health literacy gives important leads to initiate curricula and educational activities, including cross-disciplinary courses.

Keywords: *Health Literacy, Medical students, Dental students, Allied Health Sciences students, Health literacy tool*

Introduction

Health literacy (HL) is defined as the necessary capabilities to make well-informed health-related decisions. Health literate means placing one's health and that of one's family and community into context, understanding which factors are influencing it, and knowing how to address them. An individual with a sufficient level of HL can take responsibility for one's health as well as one's family health and community health.[1] The World Health Organization (WHO) defines HL as the personal, cognitive and social skills determining the ability of people to gain access to, understand and use the information to promote and maintain good health.[2] As patient's decision-making is a crucial element of patient-centric health care, insight into patient's HL might help healthcare professionals to organize their care accordingly.[3]

The role of HL in health care professionals makes it an important focus as it helps in understanding the challenges people face when attempting to find and use health care services. The concept of HL was originally used in the United States and Canada; however, it is now being used internationally, not only clinically, but also within the public health context.[4] HL has been an essential

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focus in public health research in the past decades as it is necessary for making appropriate decisions in everyday life in a way to promote and maintain good health. Many international studies have revealed that limited health literacy affects large parts of the population in terms of adverse health outcomes and higher healthcare costs.[1]

HL is a relatively new concept in India. The health science students will be the flag bearers of health literacy dissemination in the years to come since, they play an important role in educating individuals, particularly about the remarkable subjects that require information, such as medication management and planning preventive measures. It is a tough task to demarcate general literacy and health literacy in India. The current study aims to assess the health literacy level among health science students by using HLS-EU-Q16 (Health literacy Survey-European Union).

Methodology

Study Design and tool

A cross-sectional study was conducted involving undergraduate students from medical, dental, and allied health science courses at a tertiary level college in southern India. A short form (HLS-EU-Q16), comprising 16 items, was used through a self-administered questionnaire. The tool was chosen since it measures comprehensive health literacy. Further, these 16 items of the questionnaire focus on the three HL domain which includes health care, disease prevention, and health promotion.

Sampling

The sample size of 854 was calculated (CI=95%, d=5%) based on the anticipated prevalence of 50% health literacy among students of health sciences, out of which 812 was achieved. Probability proportional to size (PPS) was adopted to select participants from the various health science courses like medical, dental and AHS. For a valid index score generation, at least 13 items of the 16-item questionnaire must have been answered. Therefore, scores could not be calculated for 42 respondents, and they were excluded from further analysis, resulting in 770 students finally.

Data collection.

The institutional ethical committee clearance was obtained (IEC number 134/2019). Informed consent was obtained from all participants.

Prior permission was obtained from the heads of the institutions, and data was collected during the free hours of the students using a self- administered questionnaire via google forms that were sent to class group mail ids. The surveyors explained the purpose of the study, and the students were assured of anonymity. All questions about HL were required to be answered.

Statistical Analysis

The data were entered, cleaned & coded using 'Excel.' Data analysis was performed using the 'R studio.' The 16 items have four responses (very easy, easy, difficult, and very difficult). The 'don't know' option was included resulting in five responses for each item. All responses were given a numerical score as follows: 0- don't know; 1- very difficult; 2- fairly difficult; 3- fairly easy and 4- very easy. Mean scores were calculated for all items on the scale and then converted to an index score according to the recommendations of the HLS-EU consortium.[5] The index scores were recoded into four health literacy categories as follows; excellent (>42-50), sufficient (>33-42), problematic (>25-33), and inadequate (0-25).

Results

The overall mean HL score was 31.3(SD 4.4). The mean HL score of the medical college was 32.8 (SD 7.9) the dental college was 32.4(SD 8.1), and AHS was 30.7(SD 7.3). Table 1 shows the mean scores of HL among the health science students and indicating that the HL level among the students was limited as they had problematic HL scores.

According to the index score, the percentage of students showing an excellent score was less than those showing a low score across different streams.

The index score among the various streams has been represented in the bar graph, as shown in Figure 1 below, with a significant percentage of students showing scores falling in the problematic and sufficient range.

The index score among dental and AHS students showed an increase from the 1st years to the 3rd years in the excellent scoring category, showing a better performance among students in higher classes. Since only 2nd-year medical students participated in the study, year-wise conclusions could not be drawn among them (See table 2).

Concerning the percentage distributions on the difficulty-easiness scale, 41.2% of the study participants found it very easy to understand the doctor's or pharmacist's instructions on taking medications. 13.5% found it very difficult to find information regarding the management of mental issues. 7% did not know how to identify health warnings due to behavior such as smoking, low physical activity and drinking too much.

Table 1: Institute wise health literacy score

Institute	Mean	Standard Deviation
Overall	31.32	4.40
Medical	32.78	7.9
Dental	32.52	8.1
Allied Health Sciences	30.57	7.3

Table 2: Year-wise Index Score among dental and allied health students

Institute	Inadequate n(%)	Problematic n(%)	Sufficient n(%)	Excellent n(%)
Dental 1	11(25.6%)	14(32.6%)	16(37.2%)	2(4.7%)
Dental 2	11(21.2%)	16(30.8%)	18(34.6%)	7(13.5%)
Dental 3	4 (14.3%)	9(32.1%)	11(39.3%)	4(14.3%)
AHS 1	54(28.7%)	75(39.9%)	56(29.8%)	3(1.6%)
AHS 2	24(24.5%)	37(37.8%)	31(31.6%)	6(6.1%)
AHS 3	34(15.5%)	77(35.0%)	89(40.5%)	20(9.1%)

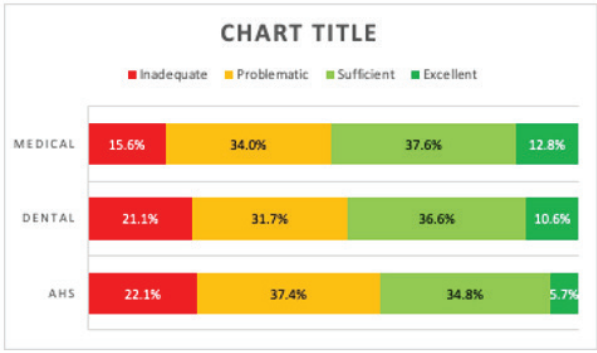

Figure 1: Graphical representation of the index scores

Discussion

The current study indicates that 7.8% of the students have excellent HL, 35.6% have sufficient HL and 35.8% of the students have problematic HL and 20.8% have inadequate HL. These findings are comparable with the findings of the study conducted by Evans AY et al, among students in a university in Ghana, where the students had 12.4% excellent HL, 33% sufficient, 34.2% problematic and 20.4% inadequate HL.[6]

Another study conducted among the general population of Catalan, 84.6% showed sufficient HL, 10.3% inadequate HL, and 5.1% problematic HL. This is higher than the findings of our study. This can be attributed to the 100% literacy rate of Catalan.[7]

In Europe, limited HL was found in 47.6% of a sample among the general population with a mean score of 33.8. The findings of the present study indicate that 56.6% of the students had limited HL with a mean score of 31.32.[8]

In another study among attendees of outpatient clinics at a University hospital in Egypt, it was seen that 34.3% had inadequate HL.[9] The inadequate HL level is less (20.8%) in the current study, which indicates the HL levels are among the health science students.

In a similar study conducted among schoolteachers in Colombo, 61.2% of them belonged to the sufficient HL and only 1% belonged to the inadequate HL.[10] which is in contrast to our study where only 35.6% had sufficient HL. This is due to the usage of the health-promoting school concept among the schools in Colombo where teachers are trained in HL to impart HL to the students.[10] This suggests that HL concept should be ingrained in the curricula of Health sciences institutions which can further contribute to enhancing the HL levels of the

health science students.[11]

The current study shows a significant difference in levels of HL among different health science institutions and across the academic years in each of these institutions. The mean HL scores among the dental and AHS students were significantly higher among senior students compared to the junior students. The medical and dental students had a higher percentage of excellent HL levels when compared to AHS students. This is in coherence with a study conducted among health professional students, where the medical students recorded the highest scores in comparison to the other AHS courses.[12] and also with a study conducted by LOU Peng Yu et al., which stated that because of its disciplinary nature and good executive ability, medical specialty scored significantly higher in health literacy.[13] Most university-based health literacy studies have demonstrated increasing health literacy with an increase in academic level,[14-17] which is consistent with the findings of our study.

Among the various items of HLS EU 16, our study participants found it difficult to access information on managing mental health problems (Item 8). However, they did not find it difficult to decide if they needed a second opinion (Item 5). In the study conducted by Evans AY et al, the students found it difficult to access information for managing mental health problems as well as deciding if they needed a second opinion.[6]

Conclusion

This study is the first of its kind in India to describe comprehensive health literacy among undergraduate university students using an internationally validated instrument. The overall HL was inadequate among the students across various health science courses. The medical students had higher levels of HL among all the health science students. It was also found that the HL levels were higher as they progressed in their academic years. It was found that countries having better general literacy had higher HL levels. This shows that general literacy can influence HL. Incorporation of the HL concept in the curricula across various health science courses will make them more equipped to make better decisions regarding their future community health practices. Mental health is one of the most neglected public health issues in India. More access to mental health information, especially for health science students cannot be overemphasized.

Recommendations

HL component should be included in the curriculum for health science students, especially dental sciences and AHS. Measures have to be taken to enhance general literacy thereby increasing the HL level of the population. Initiatives should be taken by public health sectors to increase the availability of information about mental health and related services, consequently increasing the mental health literacy levels.

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