HEALTH LITERACY: AN EVALUATION OF THE READABILITY OF DIABETES MELLITUS PATIENT EDUCATION MATERIALS ACROSS DIFFERENT PATIENT POPULATIONS IN A COMMUNITY

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ABSTRACT

**Purpose:** Health literacy is defined as the ability in which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions. Patient education materials are an effective means to provide information to patients and can lead to improved outcome if designed appropriately. Yet, most are not at a reading comprehension level appropriate for patients. The purpose of this study was to determine if health literacy guidelines set by the National Center for the Study of Adult Learning and Literacy and the goals of Healthy People 2010 were being met in this community. This study focused on the readability of Diabetes Mellitus (DM) education materials since it is a chronic illness requiring strict patient adherence to treatment. Current demographics reveal the prevalence of DM is significantly higher in areas of lower economic status. The hypothesis was that education materials provided at facilities with patients of low socioeconomic status were equal in readability to those found at facilities with patients of higher socioeconomic status. Therefore, health care facilities serving patients of low socioeconomic status are not tailoring the patient education materials to an appropriate reading level.

**Methods:** Patient education pamphlets on DM were collected from multiple healthcare facilities serving different patient populations. The data collected represented two areas of low and two areas of high socioeconomic status in Allegheny County. Three readability algorithms, the Simplified Measure of Gobbledygoop, Flesch-Kincaid Readability Index, and the Flesch Reading Ease were used to analyze the approximate level of education needed to comprehend the samples. The frequencies and mean grade level/readability score from each of the readability algorithms were analyzed using Microsoft software. The student t-test was used to compare the average readability of the patient education materials from each of the four sites listed.

**Results:** One-way analysis of variance or ANOVA determined that there was a significant difference among the readability levels among the four different areas using all the readability indices. Application of the SMOG and Flesch-Kincaid algorithms found no significant difference in grade levels in the pamphlets from Braddock (p=0.168) and Allentown (p=0.179). However, there was a significant difference in those collected from Upper St. Clair (p=0.035) and St. Margaret (p=0.0009). The Flesch Reading Ease was not involved in this analysis as it is based on a point scale and not a grade level.
The mean readability level of each site based on the Flesch-Kincaid index was 9.5 at Upper Saint Clair, 6.9 at St. Margaret, 9.0 at Braddock, and 7.0 at Allentown. Readability results from the SMOG reading index determined a mean reading level of 11.4 at Upper Saint Clair, at 8.8 St. Margaret, at 9.8 Braddock, and 8.3 at Allentown. Tukey’s Honestly Significant Difference method revealed significant differences in readability of patient education between Upper St. Clair and both St. Margaret and Allentown.

**Conclusions:** There was a significant difference in readability levels in diabetes educational materials among the areas analyzed. The average readability level was calculated for each site and determined to be much greater than the recommended eighth grade level. Further work needs to be done to enhance readability of patient education materials.