

BACKGROUND

- Patients with underlying liver disease are thought to be at higher risk for more severe illness in the setting of COVID-19.
- There is a large shift towards internet-based communication of healthcare information during the pandemic, and patients with liver disease are increasingly utilizing online resources to navigate their condition in relation to COVID-19.
- The average reading grade for online information related to viral hepatitis, cirrhosis, and hepatocellular carcinoma was between a 10th and 11th grade level, higher than the 6th grade level recommended by the National Institutes of Health (NIH).
- There is a paucity of information on the quality and accessibility of information online as it relates to liver disease and COVID-19.

STUDY AIM

- This study sought to evaluate the quality and readability of available online information related to liver disease and COVID-19.

METHODS

- Google search engine was used to query “liver disease and COVID-19” and access the first 100 websites.
- Websites that were non-accessible, duplicates, or videos without transcripts were excluded.
- Websites were categorized as academic/professional, informational, personal/blog, or commercial.
- Quality of information was determined using the DISCERN instrument, a validated scoring system that evaluates consumer health resources based on specific quality measure criteria.
- Scores were totaled and websites were categorized as “Excellent” (56-75), “Good” (36-55), or “Poor” (15-35).
- Readability was determined using the validated Flesch-Kincaid Grade Level (FKGL) score.
- Statistical analysis was performed using two-tailed Fisher exact and t-testing with significance set at $p < 0.05$.

RESULTS

Figure 1: Total DISCERN Score by Website Category

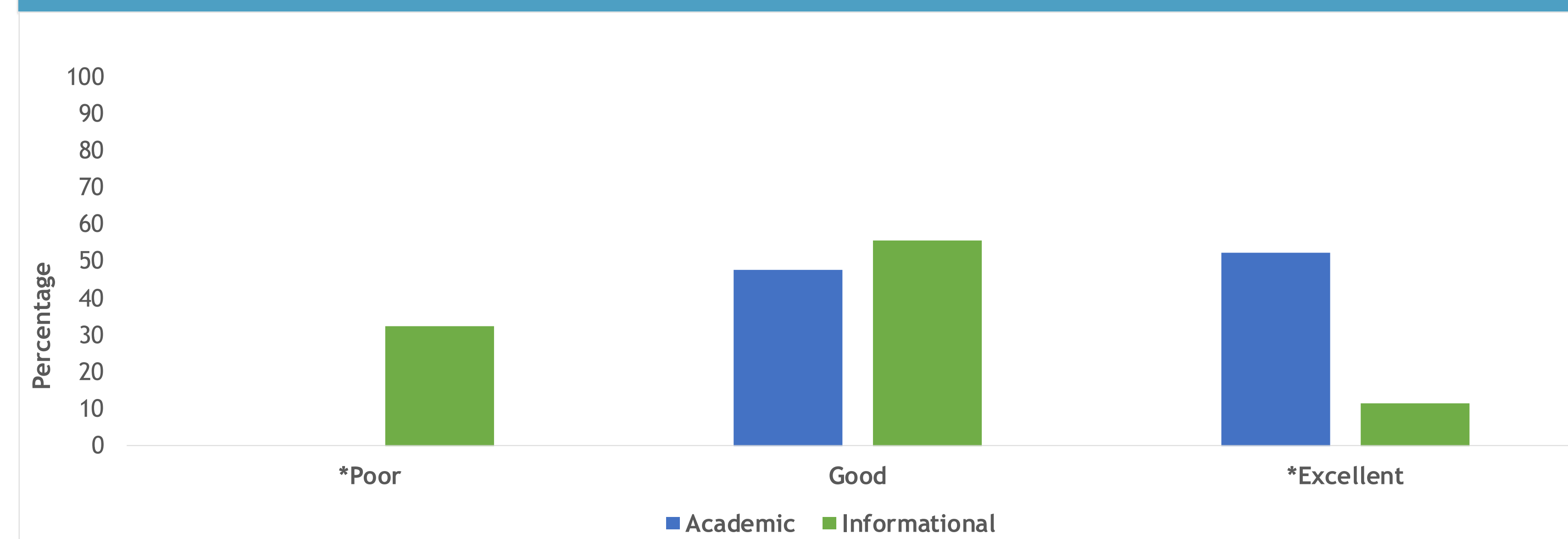


Figure 1: Total DISCERN Score by Website Category. There were significantly more “Excellent” scores among academic articles and significantly more “Poor” scores among informational articles (* denotes a statistically significant difference in total DISCERN score).

Figure 2: Distribution of DISCERN Scores by Website Category

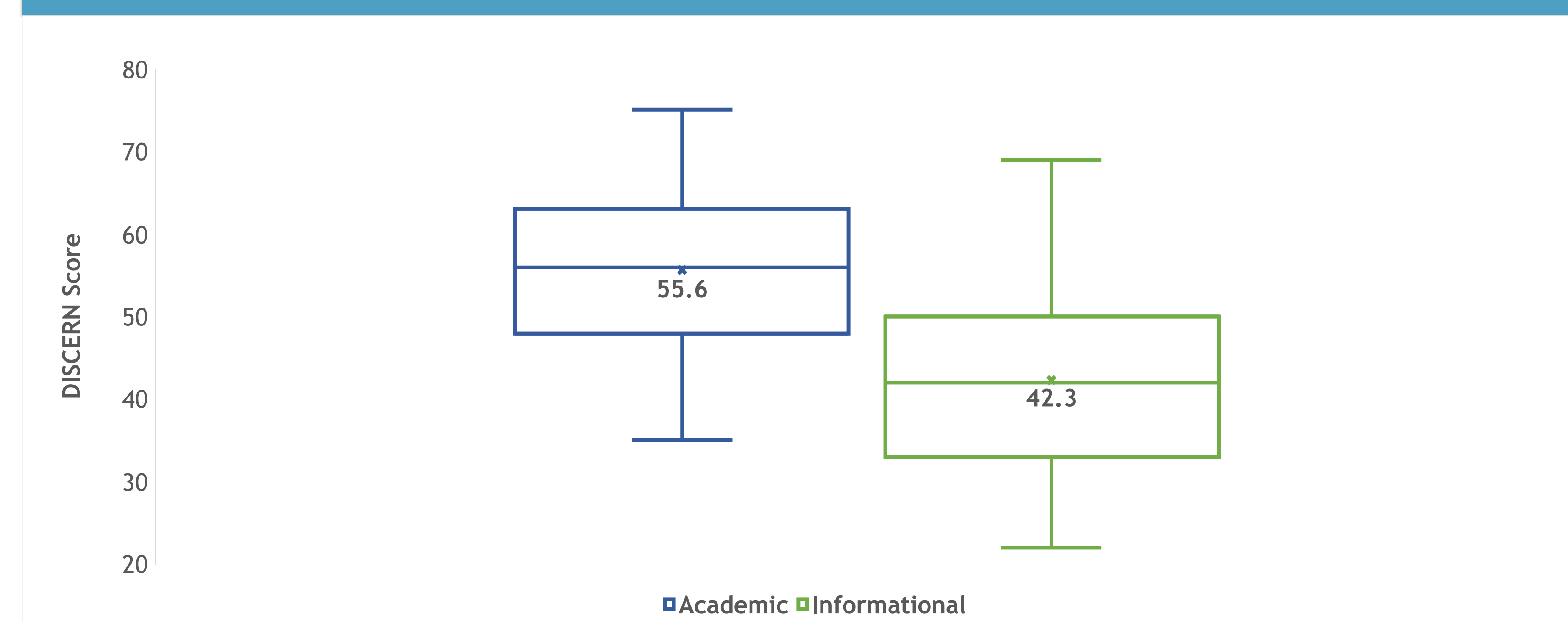


Figure 2: Box-and-whisker plot demonstrating the distribution of DISCERN scores between academic and informational websites with ranges and median lines noted. Academic articles had a significantly higher average DISCERN score.

Table 1: Flesch-Kincaid Grade Level and DISCERN Score Data

Website Category	Academic	Informational	All
Number (%)	42 (48.3%)	43 (49.4%)	87
Average FKGL	14.0	9.4	11.7
Average DISCERN	55.6	42.3	48.5
“Excellent” DISCERN (%)	22 (52.4%)	5 (11.6%)	27 (31.0%)
“Good” DISCERN (%)	20 (47.6%)	24 (55.8%)	45 (51.7%)
“Poor” DISCERN (%)	0	14 (32.6%)	15 (17.2%)

Table 1: Of 87 websites that met inclusion criteria, the average FKGL was near a 12th grade reading level, with a significantly higher reading level for academic vs informational websites. The average DISCERN was 48.5, considered a “Good” score. Academic websites had a significantly higher average DISCERN score and significantly more “Excellent” scores.

RESULTS

- Eighty-seven of 100 websites met the inclusion criteria.
- 42 (48.3%) were academic resources, 43 (49.4%) were informational, and one each (1.1%) were personal and commercial.
- The average FKGL was 11.7 with a significantly higher grade for academic websites compared to informational (14.0 vs 9.4; $p = 0.00001$).
- The average DISCERN score for all websites was “Good” with a score of 48.5.
- Academic websites had a significantly higher average DISCERN score compared to informational (55.6 vs 42.3; $p = 0.00001$).
- Academic websites had significantly more “Excellent” DISCERN scores than informational (52.4% vs 11.6%; $p = 0.0001$) while informational websites had significantly more “Poor” DISCERN scores (32.6% vs 0%; $p = 0.001$).
- References were cited significantly more in academic websites (100% vs 32.6%; $p = 0.0001$).
- Areas of uncertainty were discussed significantly more in academic resources (92.9% vs 7.0%; $p = 0.0001$).

DISCUSSION

- Academic resources on liver disease and COVID-19 published during the pandemic are of higher quality and are more likely to be unbiased and comprehensive.
- However, most academic websites contain scientific literature geared towards professionals and clinicians rather than the average healthcare consumer.
- The college reading level of academic resources is too high for the average reader, exceeding the NIH-recommended 6th grade level.
- Informational websites have a lower reading grade level but are lower in quality, discuss areas of uncertainty less, and are less likely to cite sources, with a high potential for bias.
- As patients with liver disease increasingly utilize the internet for information on COVID-19, it is important that this information remains of high quality but is also accessible.

REFERENCES

Gulati R, Nawaz M, Pyrsopoulos NT. Health literacy and liver disease. *Clin Liver Dis (Hoboken)*. 2018;11(2):48-51. Published 2018 Feb 28. doi:10.1002/cld.690