

An Analysis on the Readability of Online Resources for Forehead Flap Nasal Reconstruction

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Background

Forehead flap nasal reconstruction offers a versatile technique to repair both the external and internal nasal defects when the extent of the defect cannot be sufficiently repaired with more simple techniques.<sup>1</sup> Given the growing accessibility and widespread use of the internet as a source of health information, patients are increasingly relying on online, self-driven research to inform their medical decision-making.<sup>2, 3</sup> Thus, evaluating the readability of online patient educational materials (PEM) on forehead flap nasal reconstruction may help assess the accessibility of patient centered education for patients receiving treatment for nasal defects.<sup>4, 5</sup>

Methods

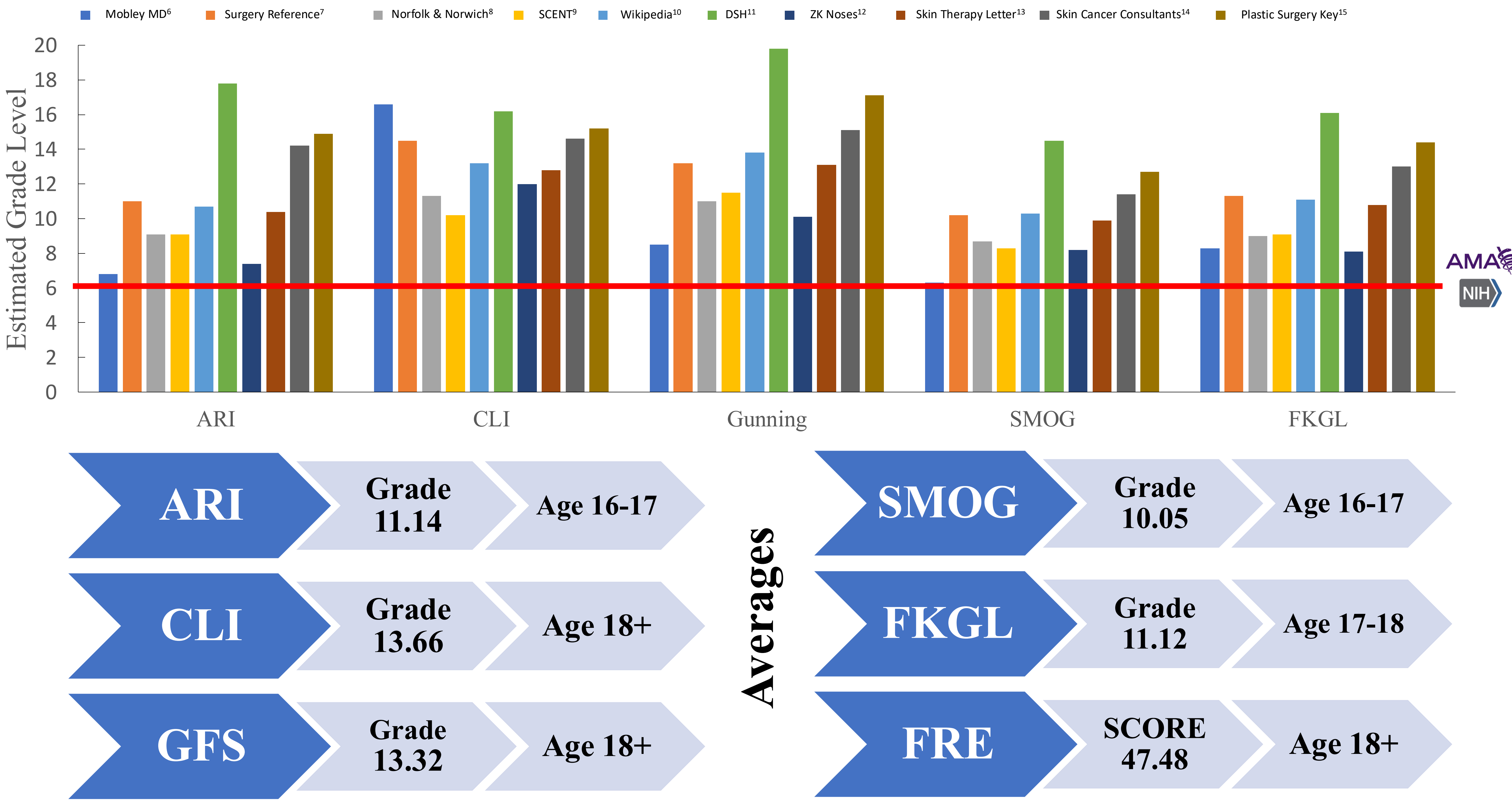
A Google Search query conducted August 2025 included the terms: “forehead flap nasal reconstruction” or “paramedian forehead flap nasal reconstruction.” The first 10 non-duplicate websites, including all first-page results, were analyzed. Non-English, paywalled articles, and research publications were excluded. Readability was assessed using six standardized metrics as seen below:

		Formula	Score Type	Goal
Automated Readability Index (ARI)	Approximates the American school grade required to comprehend material	$G = (4.71 * (C/W)) + 0.5 * (W/S) - 21.43$	US School Grade Level	≤6-8
Coleman Liau Index (CLI)	Approximates the American school grade required to comprehend material	$G = ((5.88 * C)/W) - ((29.5 * S)/W) - 15.8$	US School Grade Level	≤6-8
Gunning Fog Score (GFS)	Estimates the years of formal education a person needs to understand material (6–17)	$G = 0.4 * (W/S + ((X/W) * 100))$	US School Grade Level	≤6-8
Simple Measure of Gobbledygook (SMOG)	Estimates the number of years of education needed to understand 100% of a piece of writing (5–18)	$G = 1.0430 * \sqrt{X + (30/S)} + 3.1291$	US School Grade Level	≤6-8
Flesch Kincaid Grade Level (FKGL)	Approximates the American school grade required to comprehend material	$G = (11.8 * (B/W)) + (0.39 * (W/S)) - 15.59$	US School Grade Level	≤6-8
Flesch Reading Ease (FRE) score	Indicates ease of readability, where a higher index means easier readability	$I = 206.835 - (84.6 * (B/W)) - (1.015 * (W/S))$	Index score (out of 100)	≥60-70

G = Grade; C = characters; W = words; S = sentences; X = complex words; B = syllables; I = Index score

Results

10 websites were included in the analysis. Mean FRE score was 47.48.



Conclusion

Current online educational resources of forehead flap nasal reconstruction are likely to be written **above the ideal 6th grade readability level**, as described by the thresholds recommended by the American Medical Association.<sup>16</sup> Developing and widely dispersing accessible online resources will better support patient health literacy and informed decision-making.

References

