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Patient education materials: improving readability to advance health equity

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Abstract

Objectives: To assess the readability of American College of Obstetricians and Gynecologists (ACOG) patient education pamphlets and evaluate changes over 25 years to determine their role as a social determinant of health affecting maternal health disparities.

Methods: Cross-sectional descriptive analysis of 134 English-language ACOG patient pamphlets using five validated readability metrics (Flesch Reading Ease Score, SMOG Index, Gunning Fog Index, Coleman-Liau Index, and Bormuth Grade Placement). Materials were categorized into five groups: Pregnancy & Childbirth, Gynecologic Conditions, Other, Cancer & Screening, and Infections & STIs. A random subset of 20 pamphlets underwent quality assessment using the DISCERN tool. Results were compared with historical data from 1999.

Results: The mean DISCERN score was 65.6/75, indicating excellent content quality. However, readability analysis revealed concerning accessibility barriers. The mean Flesch Reading Ease score was 58.4 ± 6.2, with only 35.1 % of pamphlets meeting plain language standards (≥60 score, equivalent to 8th grade or below). Most materials (57.5 %) required 10th-12th grade reading ability. Across all readability metrics, the average grade level was 9.5, with only 2.2–6.7 % of pamphlets meeting recommended standards (≤8th grade). Comparison with 1999 data showed worsening readability, with scores increasing 1.0–3.7 grade levels across all metrics.

Conclusions: ACOG patient education materials consistently exceed recommended readability levels and have become more complex over 25 years. This inaccessibility perpetuates health disparities, particularly affecting marginalized populations with lower health literacy. Implementing plain language policies, AI-driven text simplification, and readability audits are essential for advancing maternal health equity and ensuring all patients can access comprehensible reproductive health information.

Keywords: readability; pamphlets; ACOG

Introduction

Access to comprehensible health information is a fundamental determinant of patient outcomes across all medical specialties [1]. When patients receive clear, accurate, and accessible information about their conditions, treatments, and preventive care, they are more likely to adhere to medical recommendations. Health literacy-the ability to obtain, process, and understand basic health information needed to make appropriate health decisions-directly impacts how patients navigate healthcare systems, adhere to medical recommendations, and participate in shared decision-making. When patient education materials are written at appropriate reading levels, they empower individuals to take control of their health journey and make informed choices [2]. This principle is especially relevant in obstetrics and reproductive medicine, where patients often need to understand complex medical decisions, such as the risks and benefits of various delivery methods, prenatal screenings, or interventions. When health information is not presented in an accessible manner-whether due to medical jargon, language barriers, or limited patient education-individual health outcomes can suffer. Beyond these individual challenges, broader systemic factors further exacerbate disparities, disproportionately affecting racial and ethnic minorities who already face higher risks of adverse health outcomes. These inequities are driven by a complex interplay of Social Determinants of Health (SDOH), including barriers to education, economic instability, limited access to healthcare, and systemic racism [3]. One of the most pervasive yet underappreciated contributors to these disparities is the inaccessibility of patient education materials due to high readability levels that exceed recommended standards [4] (Tables 1 and 2).

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Health equity-defined by the CDC as ensuring everyone has fair opportunity to reach optimal health-is a core principle embedded in healthcare accrediting bodies, regulatory agencies, and medical education institutions. To advance this principle in practice, the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) recommend that patient-facing materials be written in plain language (at or below an eighth-grade reading level) to maximize comprehension across diverse populations [5, 6]. The American College of Obstetricians and Gynecologists (ACOG) has long produced widely distributed patient education materials on reproductive health [7] and acknowledges that healthcare providers have a duty to communicate in clear, simple language [8]. However, patient education materials often fail to meet these readability standards, instead requiring a high school or college-level reading ability [9, 10]. Given health literacy's critical role in determining patient outcomes [11], we felt that reassessing ACOG materials 25 years after they were found to exceed recommended readability levels is important [10]. This analysis will determine whether ACOG has improved its educational materials to align with contemporary health communication best practices that promote equitable care. The objectives of this study are to (1) assess the readability of ACOG patient education pamphlets, (2) evaluate their quality, (3) compare current findings to data from 25 years ago to determine trends in readability, and (4) analyze the role of readability as a Social Determinant of Health (SDOH), particularly in relation to health disparities and access to medical care.

Methods

This is a cross-sectional descriptive analysis of available English language patient pamphlets from the American College of Obstetricians and Gynecologists (ACOG) Patient Digital Pamphlet Series [9]. The text content of each pamphlet was downloaded locally and analyzed using Readability Studio software, an offline tool that calculates readability scores [12].

To assess the readability of ACOG patient education materials, we analyzed 134 pamphlets using five widely used readability metrics (Flesch Reading Ease Score, SMOG Index, Gunning Fog Index, Coleman-Liau Index, and Bormuth Grade Placement) [13–17]. These indices were selected because they evaluate different aspects of text complexity, including sentence length, syllable count, and word structure, providing a comprehensive measure of readability. Findings were then compared with historical data from a 1999 publication to assess trends over time [10].

The 134 pamphlets were categorized into five different groups, and readability was assessed separately for each category: Pregnancy & Childbirth, Gynecologic Conditions, Other, Cancer & Screening, and Infections & STIs. This stratification allowed for a more nuanced evaluation of readability trends within specific topics of obstetric and gynecologic patient education materials.

In addition, a random subset of 20 ACOG pamphlets underwent quality assessment using the DISCERN tool [18], a standardized 16-question instrument designed to evaluate the reliability and quality of written consumer health information on treatment options. The DISCERN tool has been used previously to assess the quality of web-based information [19]. and uses 15 questions to evaluate content clarity, source transparency, and treatment balance, with a 16th question providing an overall rating. Each question scores 1–5, with higher scores (4–5) indicating fulfilled quality criteria and lower scores (1–2) suggesting deficiencies. Total scores range from 16-75 and are categorized as: excellent (63–75), good (51–62), fair (39–50), poor (27–38), and very poor (16–26).

Results

A total of 134 ACOG patient pamphlets were evaluated. The mean DISCERN score for the 20 patient pamphlets sampled was 65.6 (range: 63–69) out of a possible 75, indicating excellent quality, evidence-based content with well-structured and reliable health information.

The comparative analysis of grade level assessments across four readability metrics (SMOG, Gunning Fog, Coleman-Liau, and Bormuth) revealed consistent clustering in the high school range (grades 9–12), with most texts falling between grades 10–11 (Figure 1). While SMOG and Gunning Fog showed higher grade level estimates overall, Coleman-Liau and Bormuth methods yielded slightly lower grade level assessments. The average readability grade across these four metrics was 9.5, with most pamphlets requiring high school-level reading ability. Only 2.2–6.7 % of pamphlets (3–7 pamphlets) met plain language standards (grades 8 or less). Most texts fell within the high school to early college range, with no materials at a 7th-grade level or below.

The mean Flesch Reading Ease score was 58.4 ± 6.2, with scores ranging from 42.0 to 75.0. Only 35.1 % (47 pamphlets) achieved plain language standards with scores of 60 or above (equivalent to 8th grade or below). Most materials-57.5 % (77 pamphlets)-required 10th to 12th grade reading ability, while 7.4 % (10 pamphlets) demanded college-level reading comprehension (Figure 2).

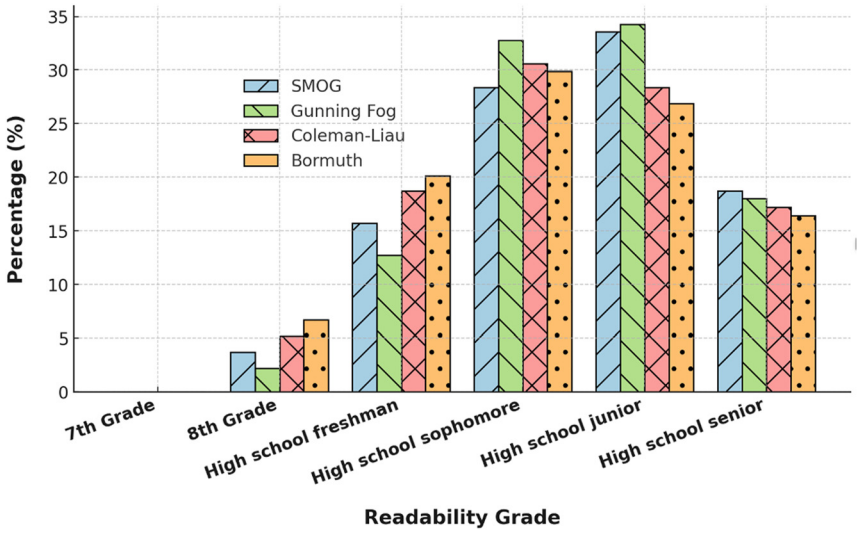

Figure 1: Readability level distribution by grades and methods.

Analysis across five medical condition categories-Pregnancy & Childbirth (n=48), Gynecologic Conditions (n=37), Other (n=20), Cancer & Screening (n=15), and Infections & STIs (n=14)-revealed readability scores spanning from middle school (6th grade) to college level (3rd year) (Figure 3). The SMOG readability levels were consistently higher because this metric focuses on polysyllabic words (words with three or more syllables) and assumes 100 % comprehension of the text, making it more stringent than other formulas. The Bormuth metric produced the lowest scores because it incorporated additional linguistic and contextual factors, such as word familiarity and sentence predictability, rather than relying solely on sentence length and syllable count. Across all categories, the average readability remained at or above the 10th-grade level. Cancer & Screening and Gynecologic Conditions exhibited the highest readability levels.

The comparison of the ACOG patient pamphlets readability scores (Coleman-Liau scores in 2025 replaced the Fry scores from 1999) from the Freda publication [10] is 1999 and this publication (Grunebaum) in 2025 reveals that readability in ACOG patient pamphlets has worsened over 25 years, with scores increasing across all metrics by 1.0–3.7 grade levels (Figure 4). The most dramatic differences appear in the Flesch formula which has a readability grade of 3.7 grade levels higher in 2025 compared to 1999 and the SMOG formula which has a readability grade that is 1.9 grade levels higher 2025 vs. 1999.

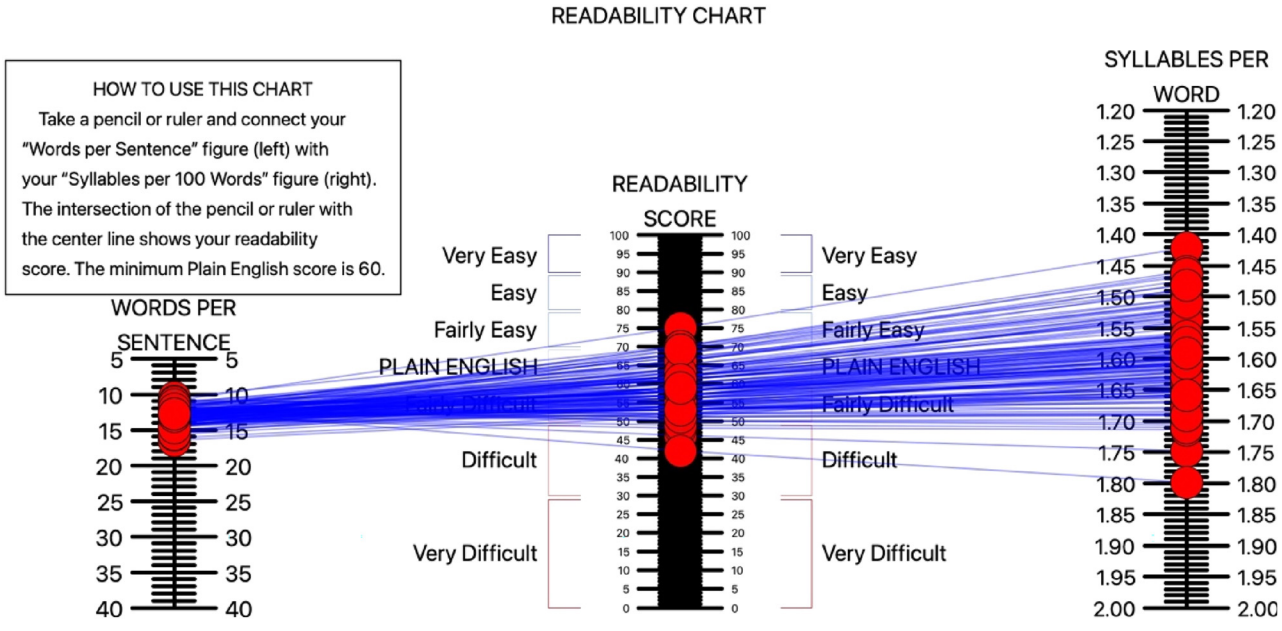

Figure 2: Flesch reading ease scores (134 Pamphlets).

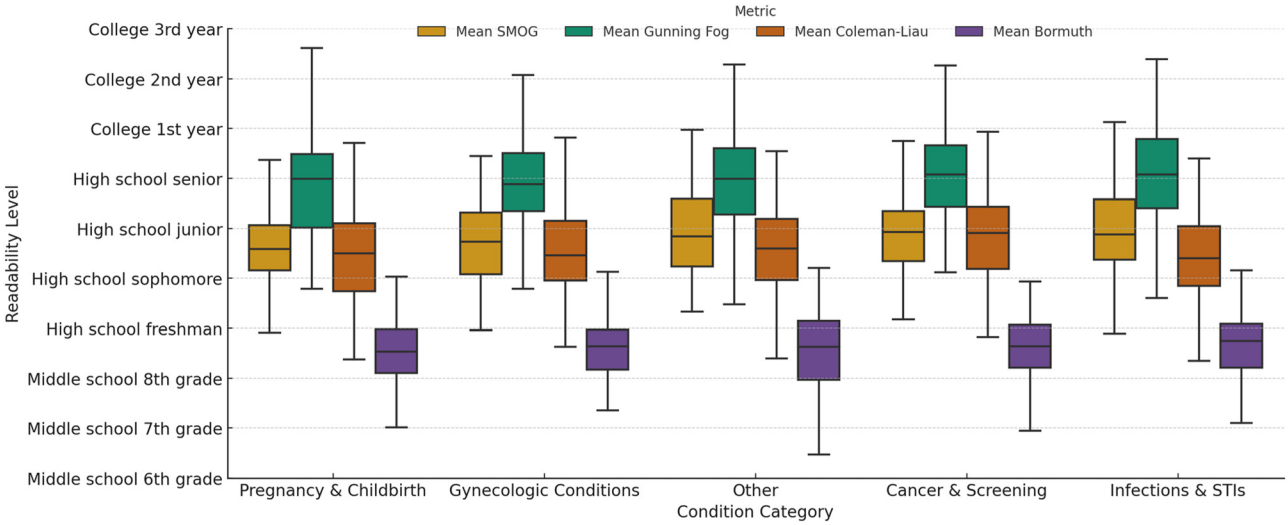

Figure 3: Readability levels of health information by condition category (4 Methods)en.

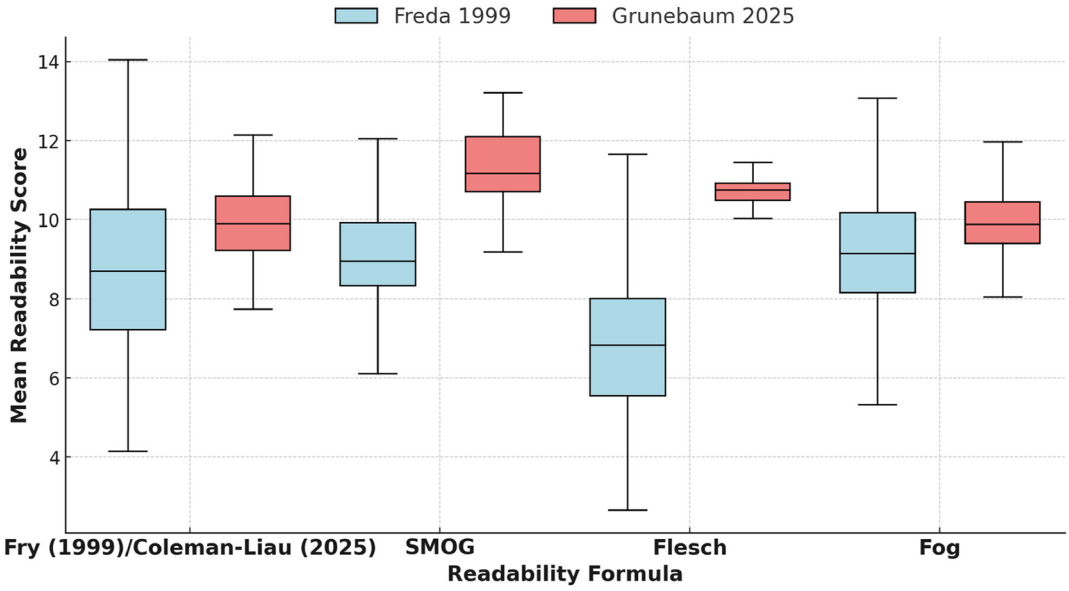

Figure 4: Comparison between freda (1999) and grunebaum (2025) readability scores.
* Coleman-Liau scores replace Fry in 2025.
This box-and-whisker plot compares readability scores from **Freda (1999)** and **Grunebaum (2025)** across four formulas. Each box represents the **interquartile range (IQR)** (middle 50 % of values), with the **line inside the box indicating the mean score**. The whiskers extend to the **minimum and maximum values within 1.5 times the IQR**, showing the spread of scores.

Discussion

Health disparities and the readability gap

Our study found that patient pamphlets created and distributed by the American College of Obstetricians and Gynecologists (ACOG) consistently exceeded the recommended readability levels [5, 6], with most materials requiring at least a high school reading level, far surpassing the sixth-to eighth-grade standard suggested by public health agencies. Analysis of ACOG's patient pamphlets readability trends over the past 25 years revealed a concerning decline, with increasing text complexity and reduced accessibility [10]. Despite maintaining high content reliability, the complexity of these materials presents a significant barrier to comprehension, particularly for pregnant patients with lower health literacy (HL) and those from historically marginalized communities [20].

Health literacy (HL) is both a result of and a modifiable social determinant of health (SDOH), deeply intertwined with factors such as education, economic stability, language proficiency, and healthcare access [21]. HL is strongly influenced by educational attainment, with individuals who have lower literacy levels often experiencing barriers to understanding essential health-related health information [10]. Interactions with healthcare systems over time can enhance HL, but disparities persist due to differences in lived environments, rural vs. urban healthcare accessibility, and language barriers. These disparities can lead in pregnancy, for example, to delayed prenatal care, inadequate birth preparedness, and poorer pregnancy outcomes, particularly among racial and ethnic minorities [11, 21].

Systemic racism and structural barriers

The readability of patient education materials plays a critical role in either mitigating or exacerbating health-related health disparities [22]. By maintaining complex medical language above recommended readability levels, ACOG's patient pamphlets reinforce systemic barriers that disproportionately impact marginalized populations. This inaccessibility contributes to systemic racism not only in women's healthcare, as racial and ethnic minorities-who are more likely to face structural barriers to education and healthcare-struggle to engage with essential health-related information effectively [3, 23]. Racial health disparities in medicine persist despite clinicians' intentions, resulting from historical policies, codified biases, and systemic neglect that require deliberate, evidence-based action to address (GBD; Bailey) Further compounding these disparities, HL can serve as a mediator for other SDOH, meaning that improving readability could help counteract some of the negative effects of socioeconomic disadvantage and racial disparities in pregnancy outcomes [24]. Patients with higher HL levels are better equipped to advocate for themselves in clinical settings, adhere to medical care recommendations, recognize warning signs of medical complications, and make informed choices about their health. However, when patient materials are written at inaccessible levels, these benefits are undermined, reinforcing the cycle of poor health outcomes for vulnerable populations [25].

Limitations

This study has several limitations. First, we did not assess how readability impacts actual patient comprehension, engagement, or health outcomes. Second, while readability metrics provide objective measures, they do not account for contextual understanding, cultural relevance, or the effectiveness of supplementary visual aids. Third, our analysis was restricted to English-language materials, which doesn't address the significant challenges faced by non-English speakers who comprise a growing segment of obstetrics and gynecology patients. Additionally, we did not evaluate the process by which ACOG develops these materials or gather input from the target audience about their perceived usefulness and accessibility.

Policy implications and the need for structural change

Addressing health inequities requires a fundamental shift in how obstetric and reproductive health-related patient education, especially those supported and created by a reputable organization like the American College of Obstetricians and Gynecology, are developed and assessed [8]. Using plain language helps make health information more accessible by reducing medical jargon, which often exceeds patients' comprehension levels-even among those with higher education-ensuring clarity and usability across all health literacy competencies [8]. Providing plain-language training for medical writers, involving communities in the co-creation of materials, and leveraging AI for translating patient information into plain language may enhance accessibility and comprehension. Health organizations such as ACOG should prioritize readability as an essential component of maternal health equity, readability audits, plain language policies, and AI-driven text improvement tools [26]. We recommend implementing a formal readability audit framework with accountability metrics to systematically track, report, and improve ACOG pamphlet readability against the 6th-8th grade benchmark. Additionally, the integration of multilingual and culturally competent resources can further enhance accessibility, ensuring that all patients-regardless of race, education level, or socioeconomic status-have equitable access to understandable health information [27]. Rather than simple translation, ACOG should develop culturally adapted multilingual materials that account for linguistic nuances and cultural contexts in reproductive health communication.

A key strategy in this effort could be leveraging artificial intelligence (AI) and machine learning tools to improve complex medical text while maintaining accuracy. AI-driven readability tools could help medical organizations adapt materials in real-time, ensuring that pregnancy- and reproductive health-related patient-facing information aligns with literacy standards [28]. Furthermore, digital

health platforms should assess patient literacy levels and generate appropriate educational content, particularly for critical topics such as prenatal care, labor options, postpartum recovery, and newborn care [29]. Medical organizations such as ACOG should pilot specific AI improvement technologies with iterative refinement cycles that evaluate both readability and clinical accuracy preservation for obstetric and gynecologic content [30, 31].

The Plain Writing Act of 2010, enacted on October 13, 2010, mandates that federal agencies use clear and concise language in public communications to ensure accessibility and understanding for all citizens. Yet, readability levels in the U.S. have shown concerning trends, with significant declines in reading skills among both children and adults as reflected in record-low National Assessment of Educational Progress scores and declining adult literacy rates [32]. Healthcare institutions and organizations have a critical professional obligation to provide patients with comprehensible and accessible health information, emphasizing clear communication to mitigate disparities associated with health literacy barriers [7]. Ignoring readability standards undermines patient autonomy by preventing individuals from making fully informed decisions about their health and contributes to systemic racism [33]. Readability must be treated as a health priority, included into Social Determinants of Health (SDOH), and be embedded in health care policies, and enforced as a standard within healthcare organizations [34].

Ultimately, accessible healthcare information and readability are a matter of health justice. If health-related patient materials continue to be produced by health organizations like the American College of Obstetricians and Gynecologists at unnecessarily high literacy levels, the systemic exclusion of marginalized populations will persist, reinforcing racial and socioeconomic disparities in health outcomes [35, 36]. Poor health literacy partially explains racial disparities in some outcomes [4], and by acknowledging readability as a key SDOH and taking concrete steps toward accessibility, medical organizations can move toward a more equitable patient care system where all patients have the information they need to make informed decisions about their health.

Figure 4 presents both the distribution of Flesch Reading Ease scores for 134 ACOG patient pamphlets and the relationship between words per sentence and syllables per word, two key components of the Flesch Reading Ease formula. Although the numerical 0–100 Flesch scale is not explicitly shown, the readability categories – such as “Very Easy” (90–100), “Easy” (80–89), “Moderately Easy” (70–79), “Moderately Difficult” (60–69), “Difficult” (30–59), and “Very Difficult” (0–29) – are consistent with the standard Flesch Reading Ease interpretation.

Explanation for box plot below the graph

Each box represents the interquartile range (IQR), showing where the middle 50 % of readability scores fall. The **horizontal line inside the box** marks the **median** (50th percentile). The **whiskers** extend to the minimum and maximum values within 1.5 times the IQR. This captures the overall distribution of readability scores across different condition categories and metrics.

This box plot illustrates the readability levels of health information across different medical condition categories, assessed using four readability metrics: SMOG, Gunning Fog, Coleman-Liau, and Bormuth. The readability scores span from middle school (6th grade) to college level (3rd year), with notable variations between condition categories. **Gunning Fog consistently reports the highest readability levels,** as it heavily weighs sentence length and the proportion of complex words, making texts appear more difficult to read. In contrast, Bormuth produces the lowest readability scores because it considers word familiarity and sentence predictability rather than relying solely on sentence length and syllable count. As a result, Bormuth tends to classify text as more readable than the other indices. Across all categories, the average readability remains at or above the 10th-grade level (high school sophomore), well beyond the 6th-8th grade range recommended for plain language in patient education materials. This indicates that none of the assessed materials meet the standard for easy readability, potentially posing comprehension challenges for many patients. Cancer & Screening and Gynecologic Conditions exhibit the highest readability levels, making them the most challenging to comprehend.

Research ethics: The local Institutional Review Board deemed the study exempt from review.
Informed consent: Not applicable.
Author contributions: All authors have accepted responsibility for the entire content of this manuscript and approved its submission.
Use of Large Language Models, AI and Machine Learning Tools: For help and grammar as indicated.
Conflict of interest: The authors state no conflict of interest.
Research funding: None declared.
Data availability: Not applicable.

Appendix

Table 1: Readability metrics, scales, and formulas.

Table: Readability metrics	Scale	Formula
Flesch reading ease score: Analyzes average sentence length and syllables per word. It uses a 0–100 scale, where higher scores indicate easier reading. Unlike other measures, it doesn't correspond directly to grade levels. The formula considers total syllables, words, and sentences. [Flesch]	A score of 90–100 means the text is very easy to read (5th-grade level), 60–70 is considered plain English (8th-9th grade), and 0–30 suggests college-level difficulty.	206.835 - (1.015 × ASL) - (84.6 × ASW) Where: ASL = average sentence length (words/sentences) ASW = average syllables per word (syllables/words)
SMOG (simple measure of gobbledygook): Examines polysyllabic words (3 + syllables) in 30 sentences. The formula counts complex words and converts this to a grade level. It's often used for healthcare materials because it's validated for testing comprehension and predicts 100 % comprehension at the calculated grade level. [SMOG]	The SMOG score corresponds to U.S. grade levels, where a score of 10 means the text is understandable by a 10th-grade student, and a score of 12 means it is suitable for a high school graduate.	1.0430 × $\sqrt{}$(number of polysyllables × 30/number of sentences) + 3.1291 Where polysyllables=words with 3+ syllables
Gunning fog index: Calculates readability by averaging sentence length and percentage of complex words (3 + syllables). It doesn't count proper nouns, familiar jargon, or compound words. The resulting score estimates the years of formal education needed to understand the text on first reading. [Gunning fog]	The gunning fog score directly translates to the number of years of formal education; for example, a score of 12 means the text is understandable by someone with a high school education, while a score of 16 suggests college-level reading.	0.4 × ((words/sentences) + 100 × (complex words/words)) Where complex words=words with 3 + syllables, excluding proper nouns, familiar jargon, or compound words
Coleman-liau index: Uses characters instead of syllables, calculating average number of letters per 100 words and sentences per 100 words. This makes it easier to compute automatically and less sensitive to differences in syllable counting methods. [Coleman]	The index produces a grade-level score similar to SMOG, meaning a score of 8 suggests the text is understandable by an 8th grader, while a score of 14 indicates the text is at a college level.	0.0588 L - 0.296 S - 15.8 Where: L = average number of letters per 100 words S=average number of sentences per 100 words
Bormuth grade placement: Considers linguistic features like word frequency, word length, and sentence length. It includes additional variables beyond just word and sentence complexity, making it potentially more comprehensive than simpler	The bormuth score is expressed in U.S. grade levels, where a score of 6 means the text is suitable for a 6th grader, and a score of 12 indicates it is appropriate for high school graduates.	0.886593 - (0.083640 × CL) + (0.161911 × CW^3) - (0.021401 × CW^2) + (0.000577 × CW) - (0.000005 × CL^2) Where:c CL = Cloze criterion score percentagem CW=Mean word length in letters

Table 2: Readability assessment of 134 individual ACOG patient pamphlets.

Pamphlet	Flesch reading ease	SMOG	Gunning fog	Coleman-liau (grade levels)	Bormuth grade placement	Overall assessment	Readability grade range	School level
EP001 nutrition during pregnancy	65	10.9	9.4	9.1	9.2	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP004 how to tell when labor begins	66	10.2	8.7	8.9	9.1	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP006 cesarean birth	59	11.4	10.4	9.1	9.2	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP008 hysterectomy	46	12.6	12	11.2	9.9	Highly complex	Grade 11 - 12	Senior (HIGH SCHOOL)
EP009 how to prev STIs	58	10.8	8.9	10.1	9.6	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP011 sterilization for women and men 042,022	53	11.7	10.7	10.6	9.6	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP012 pelvic SuppProbs	59	10.7	9.8	10.1	9.6	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP013 endometriosis 022,021	52	11.3	10.4	10.9	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP015 fetal heart rate monitoring during labor	52	12.2	10.5	10.9	10	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP020 when sex is painful	52	11.7	11.3	10.9	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP022 barrier methods of birth control	61	11.4	10.3	9.5	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP024 fertility awareness-based methods of family planning	51	12.8	12.1	10.6	9.9	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP026 benign breast conditions	64	10.6	8.7	9.9	9.5	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP027 The Rh factor	56	11.7	9.9	9.5	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP028 vaginitis 092,023	54	10.9	9.8	10.5	9.7	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP029 breastfeeding your baby	68	10.3	8.9	9.6	9.2	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP032 A partners guide to pregnancy 122,022	59	11.2	10	10.1	9.4	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP034 preeclampsia and high blood pressure during pregnancy	58	11.5	10	10.8	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP038 bleeding during pregnancy	53	12.1	11.2	10.4	9.7	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP039 newborn male circumcision	57	11.5	10.4	10.4	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP041 your changing body puberty in girls	75	9.2	7.9	7	8.4	Moderately easy	Grade 7 - 9	Freshman (HIGH SCHOOL)
EP042 you and your sexuality	67	9.9	8.1	8.4	9	Moderately easy	Grade 8 - 9	Freshman (HIGH SCHOOL)
EP043 abortion care 092,022	53	12.2	11.3	10.8	9.7	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP045 staying active physical activity and exercise	57	11.6	10.6	10.5	9.5	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP046 dysmenorrhea painful periods	50	11.9	10.8	11.1	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP047 The menopause years	53	12	11.1	11.2	9.8	Moderately difficult	Grade 11 - 12	Senior (HIGH SCHOOL)
EP048 osteoporosis_	58	11	9.4	10.5	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP049 your first period teen	70	10.4	9.4	7.8	8.6	Moderately difficult	Grade 7 - 10	Sophomore (HIGH SCHOOL)
EP050 urinary tract infections	62	10.4	9.1	8.5	9.2	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP054 genital herpes	64	10.3	8.5	9.3	9.3	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP055 travel during pregnancy	62	10.4	8.8	9.7	9.2	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP056 good health before pregnancy	55	11.9	10.3	11.3	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP057 premenstrual syndrome	60	10.6	9.4	10.6	9.6	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP060 having a baby after age 35	59	11.4	9.7	9.9	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP061 laparoscopy	51	12	11	10.2	9.6	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
EP062 dilation and curettage	56	11.9	10.9	9.3	9.3	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP064 weight control	64	11	9.4	9.3	9.2	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP065 its time to quit smoking	67	10	8.5	9.7	9.2	Moderately easy	Grade 8 - 10	Sophomore (HIGH SCHOOL)

Table 2: (continued)

Pamphlet	Flesch reading ease	SMOG	Gunning fog	Coleman-liau (grade levels)	Bormuth grade placement	Overall assessment	Readability grade range	School level
EP068 alcohol and women	55	11.5	9.7	11.1	9.7	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP069 when pregnancy goes past your due date	58	11.4	9.8	9.9	9.6	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP070 VBAC	54	12.3	10.9	10.3	9.7	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP071 Chlamydia gonorrhea and syphilis	57	11.3	9.8	10	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP072 your sexual health	57	11.2	10.3	9.7	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP074 uterine fibroids	56	11.2	10	10.4	9.6	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP075 ovarian cysts	55	11.9	10.5	9.8	9.6	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP079 if your baby is breech	60	11.4	10	9.4	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP080 preparing for surgery	64	10.8	10.2	8.8	9.1	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP081 urinary incontinence	56	11	9.5	10.4	9.8	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP083 intimate partner violence	60	10.9	9.5	9.6	9.3	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP084 hysteroscopy	55	11.6	10.7	10.2	9.5	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP085 cervical cancer screening	59	11.2	9.6	9.9	9.6	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP086 medication for pain relief during labor and delivery	57	11.2	10.1	9.7	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP087 preterm labor and birth	58	10.9	9.4	9.9	9.6	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP088 disorders of the vulva	55	11.2	10	10.5	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP090 early pregnancy loss	58	11.4	10	9.6	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP091 postpartum depression	55	11.9	10.9	11.1	9.9	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP093 viral hepatitis in pregnancy	55	11.4	10.5	9.5	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP094 genetic disorders	57	11.8	10.3	10.6	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP096 ovarian cancer	53	11.9	10.7	10.2	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP097 endometrial cancer	48	12.4	11.1	11.5	9.9	Highly complex	Grade 11 - 12	Senior (HIGH SCHOOL)
EP098 special tests for monitoring fetal well-being	63	11.1	9.8	9.4	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP100 repeated miscarriage	53	12.2	10.7	10.9	9.8	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP103 having baby teens	70	9.8	8.5	8.8	8.8	Moderately easy	Grade 8 - 9	Freshman (HIGH SCHOOL)
EP105 group B strep and pregnancy	57	11.2	9.3	9.6	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP106 depression	56	12.3	11.6	11.1	9.8	Highly complex	Grade 11 - 12	Senior (HIGH SCHOOL)
EP110 loop electrosurgical excision procedure	59	10.9	9.1	9.5	9.4	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP112 birth control teens	68	10	8.2	8.3	8.9	Moderately easy	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP113 HIV and pregnancy	60	10.6	8.9	9.7	9.3	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP114 emergency contraception	59	11.6	10.4	9.3	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP115 back pain during pregnancy	68	10.2	8.7	8.9	9	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP119 exercise during pregnancy	64	10.3	8.9	9.4	9.1	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP120 problems of the digestive system	58	10.9	9.6	10.5	9.7	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP121 polycycstic ovary syndrome	53	12	10.7	11.2	9.9	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
EP122 heart health for women	58	11.2	9.5	10.7	9.7	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP123 managing high blood pressure	62	10.6	8.7	10.9	9.6	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP125 protecting yourself against hepatitis B and hepatitis C	56	11.5	9.8	9.9	9.7	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)

Table 2: (continued)

Pamphlet	Flesch reading ease	SMOG	Gunning fog	Coleman-liau (grade levels)	Bormuth grade placement	Overall assessment	Readability grade range	School level
EP126 morning sickness	61	11.3	11.1	9.6	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP128 thyroid disease 012,021	61	9.9	8.7	10.5	9.6	Moderately easy	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP130 healthy eating 122,020	66	10.1	8.4	8.9	9.1	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP131 exercise after pregnancy	62	10.5	9.3	9.8	9.2	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP133 routine tests during pregnancy	61	10.8	9.1	9.5	9.5	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP134 endometrial ablation	50	11.8	10.5	10.9	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP135 colposcopy	58	11.3	9.8	9.3	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP136 evaluating infertility	53	11.7	10.2	10.5	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP137 treating infertility	53	11.6	10.6	10.4	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP139 accidental bowel leakage	61	9.8	8.1	10.1	9.5	Moderately easy	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP142 diabetes and women	58	11.6	10.1	10.4	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP143 hysterosalpingography	58	11.2	9.7	9.1	9.4	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP146 reducing risks of birth defects	54	11.9	10	10.9	9.9	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP147 endometrial hyperplasia	50	12	11.2	10.9	9.8	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
EP150 your first gynecologic visit	66	9.9	7.8	8.4	9	Moderately easy	Grade 7 - 9	Freshman (HIGH SCHOOL)
EP154 labor induction	55	11.6	10.2	10.3	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP155 ectopic pregnancy	54	12.3	11.7	10.7	9.8	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP156 how your fetus grows during pregnancy	70	9.7	8	8	8.8	Moderately easy	Grade 8 - 9	Freshman (HIGH SCHOOL)
EP162 perimenopausal bleeding and bleeding after menopause	55	11.1	10.2	10.1	9.5	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP163 cervical cancer	58	11	9.3	9.9	9.6	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP164 prenatal genetic diagnostic tests	54	12.1	10.9	10.9	9.8	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP165 prenatal genetic screening tests	57	11.7	10	10.9	9.9	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP166 surgery for stress urinary incontinence	56	11.7	10.7	10.4	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP169 skin conditions during pregnancy	63	10.7	9.6	10	9.4	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP170 tobacco alcohol drugs and pregnancy	51	12	11	11.5	9.9	Moderately difficult	Grade 11 - 12	Senior (HIGH SCHOOL)
EP171 cystic fibrosis	62	11.5	10	8.8	9.4	Moderately difficult	Grade 8 - 11	Junior (HIGH SCHOOL)
EP172 cord blood banking	68	10.3	8.9	8.7	9.1	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP173 extremely preterm birth	52	12.1	10.9	11.6	9.9	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP174 preventing deep vein thrombosis	69	10.5	8.9	8.6	9.2	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP175 sonohysterography	54	12	10.2	9.9	9.6	Moderately difficult	Grade 9 - 12	Senior (HIGH SCHOOL)
EP176 pregnancy type 1 type 2 diabetes	58	11.7	10.2	10.4	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP177 gestational diabetes	62	10.9	9.7	9.7	9.4	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP178 mammography and other screening tests for breast problems	66	10.6	8.5	9.6	9.4	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP179 carrier screening	54	12.4	11.3	10.5	9.8	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP182 obesity and pregnancy	57	11.9	10	10.4	9.6	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP183 surgery for pelvic organ prolapse	54	11.9	11.3	10.8	9.8	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP184 LARC	61	11.1	9.8	9	9.2	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)

Table 2: (continued)

Pamphlet	Flesch reading ease	SMOG	Gunning fog	Coleman-liau (grade levels)	Bormuth grade placement	Overall assessment	Readability grade range	School level
EP186 progestin-only hormonal birth control methods	59	11.3	9.9	10.1	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP187 abnormal cervical cancer screening test results	62	10.7	9.1	9.3	9.4	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
EP188 multiple pregnancy	52	12.2	10.7	11	9.9	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP189 The flu vaccine and pregnancy	59	11.1	9.6	10	9.6	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
EP190 vulvovaginal health	52	12	11.3	10.7	9.8	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
EP192 assisted vaginal delivery	55	12	10.7	10	9.6	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
EP193 heavy menstrual bleeding	49	12.3	10.9	11.4	9.9	Highly complex	Grade 10 - 12	Senior (HIGH SCHOOL)
EP194 postpartum birth control	58	11.4	10.1	10.3	9.5	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
EP195 preventing HIV with medication	61	10.8	8.8	9.9	9.5	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
EP196 marijuana and pregnancy	42	12	11.2	11.5	9.9	Moderately difficult	Grade 11 - 12	Senior (HIGH SCHOOL)
EP197 carrier screening spinal muscular atrophy	62	11.3	9.8	8.9	9.3	Moderately difficult	Grade 8 - 11	Junior (HIGH SCHOOL)
EP198 breast cancer survivorship	51	11.5	10.4	12.1	10	Moderately difficult	Grade 10 - 12	Senior (HIGH SCHOOL)
FF349 HIV other important blood tests during pregnancy	63	10.7	9.8	8.7	9.3	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
FF532 combination pills	62	11	9.7	9.8	9.5	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
FF538 diaphragm	65	10.6	9.3	8.7	9.2	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
FF575 vaccine safety	53	11.1	9.5	11.1	9.8	Moderately difficult	Grade 9 - 11	Junior (HIGH SCHOOL)
FF576 FAQ tdap vaccination during pregnancy	66	10.4	9.5	8.6	9	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
FF582 progestin pills	63	10.7	9.4	9.1	9.2	Moderately difficult	Grade 9 - 10	Sophomore (HIGH SCHOOL)
FF593 for patients HPV	69	9.8	8.4	8.2	9.1	Moderately easy	Grade 8 - 9	Freshman (HIGH SCHOOL)
FF612 breastfeeding frequently asked questions	61	10.9	10.2	11.3	9.7	Moderately difficult	Grade 10 - 11	Junior (HIGH SCHOOL)
FF633 COVID-19 and pregnancy	59	10.8	8.6	10.1	9.4	Moderately difficult	Grade 8 - 10	Sophomore (HIGH SCHOOL)
Mean ± SD	58.4 ± 6.2	11.2 ± 0.8	9.9 ± 0.9	10.0 ± 1.0	9.5 | ± 0.3		Mean grade range: 9.5	**Most common school levels:** Junior (HIGH SCHOOL): 64 Sophomore (HIGH SCHOOL):55 Senior (HIGH SCHOOL):15
Median	58.0	11.3	10.0	10.1	9.6			
Range (min–Max)	42.0–75.0	9.2–12.8	7.8–12.1	7.0–12.1	8.4–10.0			

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