

# Internet Health Resources on Nocturnal Enuresis: A Readability, Quality, and Accuracy Analysis

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## Abstract

**Introduction** Nocturnal enuresis is a common yet quality-of-life-limiting pediatric condition. There is an increasing trend for parents to obtain information on the disease's nature and treatment options via the internet. However, the quality of health-related information on the internet varies greatly and is largely uncontrolled and unregulated. With this study, a readability, quality, and accuracy evaluation of the health information regarding nocturnal enuresis is carried out.

**Materials and Methods** A questionnaire was administered to parents and patients with nocturnal enuresis to determine their use of the internet to research their condition. The most common search terms were determined, and the first 30 websites returned by the most popular search engines were used to assess the quality of information about nocturnal enuresis. Each site was categorized by type and assessed for readability using the Gunning fog score, Simple Measure of Gobbledygook (SMOG) index, and Dale–Chall score; for quality using the DISCERN score; and for accuracy by comparison to the International Children's Continence Society guidelines by three experienced pediatric urologists and nephrologists.

**Results** A total of 30 websites were assessed and classified into five categories: professional ( $n = 13$ ), nonprofit ( $n = 8$ ), commercial ( $n = 4$ ), government ( $n = 3$ ), and other ( $n = 2$ ). The information was considered difficult for the public to comprehend, with mean Gunning fog, SMOG index, and Dale–Chall scores of  $12.1 \pm 4.3$ ,  $14.1 \pm 4.3$ , and  $8.1 \pm 1.3$ , respectively. The mean summed DISCERN score was  $41 \pm 11.6$  out of 75. Only seven (23%) websites were considered of good quality (DISCERN score  $> 50$ ). The mean accuracy score of the websites was  $3.2 \pm 0.6$  out of 5. Commercial websites were of the poorest quality and accuracy. Websites generally scored well in providing their aims and identifying treatment benefits and options, while they lacked references and information regarding treatment risks and mechanisms.

**Conclusion** Online information about nocturnal enuresis exists for parents; however, most websites are of suboptimal quality, readability, and accuracy. Pediatric surgeons should be aware of parents' health-information-seeking behavior and be proactive in guiding parents to identify high-quality resources.

## Keywords

- ▶ internet information
- ▶ enuresis
- ▶ pediatric
- ▶ readability
- ▶ quality

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## Introduction

In this era of an exponentially growing cyber world, the internet has transformed the practice of medicine significantly. With the capability to disseminate diverse information across populations and nations, the internet has gained widespread influence on health-information-seeking behavior, and doctors are no longer regarded as the primary source of health information.<sup>1–4</sup> Online health information has influenced internet users' treatment decisions and health-information-seeking behavior. In a survey by Pehora et al in 2015, nearly 98% of parents have used the internet to access information about their children's health, and they have relied on the internet more readily than on their children's doctors.<sup>4,5</sup>

Although it helps to disseminate information more conveniently, the quality and control of health-related information on the internet has been a concern over the years. The quality of information available online is highly variable, and many sources contain inaccurate or misleading information.<sup>3,6,7</sup> Furthermore, concerns have been raised regarding the regulation of online health information as the pharmaceutical and medical device industries are increasingly using the internet to market their products, not only to health care professionals but also to the general public.<sup>8</sup> Recent research has demonstrated that doctor–parent communication has become more challenging as parents may have been misled by inaccurate online health information, making consultations more time consuming.<sup>9,10</sup> This phenomenon happens in a wide range of health topics, including urological conditions.<sup>3,6,7</sup>

Nocturnal enuresis, or enuresis, is defined by the International Children's Continence Society (ICCS) as the intermittent incontinence of urine while sleeping in children aged 5 or older, and it is defined regardless of whether concomitant daytime incontinence or other lower urinary tract symptoms are present as well.<sup>11</sup> It is a common problem in children, affecting 10% at age 6 and 5% at age 10, with 1% persisting into the teenage and adult years.<sup>12</sup> Enuresis can lead to emotional distress in both parents and patients. It also can result in behavioral and self-esteem problems as well as limit patients' quality of life.<sup>13</sup> However, most children are delayed in receiving treatment because of parental misconceptions and fear of stigmatization. Instead of seeking medical attention early, these parents tend to resort to the internet to acquire knowledge and advice.

The aim of this study was to evaluate the readability, quality, and accuracy of internet information related to nocturnal enuresis. It also aimed to compare these parameters between websites from various sources.

## Materials and Methods

### Study Design

A single-center, cross-sectional study was conducted in a tertiary pediatric surgical center. This study is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies, where appropriate.<sup>14</sup> The study was

reviewed and approved by the hospital's institutional review board (reference number: UW 23-390).

### Data Acquisition

A short, anonymous survey for parents of children with enuresis was administered prior to the commencement of the web search. A total of 30 parents, consisting of 26 women and 4 men with children, attending follow-up on enuresis in a pediatric surgical and renal clinic were included in the survey. Parental patterns of seeking internet health information, commonly used search engines and terms used for searching were evaluated. Based on the survey, a list of websites from various engines (weighted according to the responses) was generated using the search terms and phrases suggested by the parents.

The most-used terms according to the survey were “enuresis,” “nocturnal enuresis,” and “bed wetting.” These terms were then used to carry out an internet search on health information related to enuresis on February 15, 2022. The most popular search engines among the parents were Google (86%), Yahoo (13%), and Baidu (< 1%). To reflect the disproportionate use of search engines according to the survey, the first 26 websites returned by Google, 3 from Yahoo, and 1 from Baidu were included in the analysis. Duplicate websites and those that were inaccessible were excluded in the analysis, and only English websites were included. The websites included are listed in [Table 1](#).

### Readability Study

Websites were assessed for readability using three validated, independent scoring systems: Gunning fog score, Simple Measure of Gobbledygook (SMOG) index and Dale–Chall score. The Gunning fog score ranges from 0 to 20 and is calculated using a formula that incorporates the total number of words, sentences, and complex words. Complex words are words containing three or more syllables. This score estimates the years of formal education a person needs to understand the text on the first reading. A Gunning fog index of 6 is readily readable for sixth graders. Texts aimed at the public should aim at a grade level of no more than 8. Texts with scores greater than 17 are regarded as being at the postgraduate level. Similarly, the SMOG index measures the number of years of education an average person needs to have to understand a text by considering the number of polysyllabic words (three or more syllables) present. The results are then converted to an estimated grade level according to a SMOG conversion table. The Dale–Chall score ranges from 0 to 10 and is calculated using a formula that incorporates the total number of words, sentences, and complex words. A Dale–Chall score of 6 to 6.9 corresponds to a seventh- or eighth-grade reading level, whereas scores above 9.0 indicate comprehension by a college student. With the advancement of information technology, these scores were obtained automatically by inserting the text into online automated readability score calculators (Gunning fog score: <http://gunning-fog-index.com/fog.cgi>; SMOG index and Dale–Chall score: <https://readabilityformulas.com/freetests/six-readability-formulas.php>).

**Table 1** List of websites

Websites	Type	Origin
<a href="https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=90&amp;contentid=p03083">https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=90&amp;contentid=p03083</a>	Professional	United States
<a href="https://www.webmd.com/mental-health/enuresis">https://www.webmd.com/mental-health/enuresis</a>	Professional	United States
<a href="https://kidshealth.org/en/teens/enuresis.html">https://kidshealth.org/en/teens/enuresis.html</a>	Professional	United States
<a href="https://emedicine.medscape.com/article/1014762-overview">https://emedicine.medscape.com/article/1014762-overview</a>	Professional	United States
<a href="https://www.mayoclinic.org/diseases-conditions/bed-wetting/symptoms-causes/syc-20366685">https://www.mayoclinic.org/diseases-conditions/bed-wetting/symptoms-causes/syc-20366685</a>	Professional	United States
<a href="https://www.hopkinsmedicine.org/health/conditions-and-diseases/bedwetting-enuresis">https://www.hopkinsmedicine.org/health/conditions-and-diseases/bedwetting-enuresis</a>	Professional	United States
<a href="https://www.rch.org.au/clinicalguide/guideline_index/Enuresis_-_Bed_wetting_and_Monosymptomatic_Enuresis/">https://www.rch.org.au/clinicalguide/guideline_index/Enuresis_-_Bed_wetting_and_Monosymptomatic_Enuresis/</a>	Professional	Australia
<a href="https://www.urologyhealth.org/urologic-conditions/bed-wetting-(enuresis)">https://www.urologyhealth.org/urologic-conditions/bed-wetting-(enuresis)</a>	Nonprofit	United States
<a href="https://www.childrenshospital.org/conditions-and-treatments/conditions/e/enuresis-urinary-incontinence">https://www.childrenshospital.org/conditions-and-treatments/conditions/e/enuresis-urinary-incontinence</a>	Professional	United States
<a href="https://www.healthychildren.org/English/health-issues/conditions/genitourinary-tract/Pages/Nocturnal-Enuresis-in-Teens.aspx">https://www.healthychildren.org/English/health-issues/conditions/genitourinary-tract/Pages/Nocturnal-Enuresis-in-Teens.aspx</a>	Nonprofit	United States
<a href="https://www.bladderandbowel.org/bladder/bladder-conditions-and-symptoms/nocturnal-enuresis/">https://www.bladderandbowel.org/bladder/bladder-conditions-and-symptoms/nocturnal-enuresis/</a>	Nonprofit	United Kingdom
<a href="https://www.cfpsych.org/condition/bed-wetting-enuresis/">https://www.cfpsych.org/condition/bed-wetting-enuresis/</a>	Nonprofit	United States
<a href="https://pch.health.wa.gov.au/For-health-professionals/Referrals-to-PCH/Prereferral-guidelines/Enuresis">https://pch.health.wa.gov.au/For-health-professionals/Referrals-to-PCH/Prereferral-guidelines/Enuresis</a>	Professional	Australia
<a href="https://www.ucsfbenioffchildrens.org/conditions/bedwetting">https://www.ucsfbenioffchildrens.org/conditions/bedwetting</a>	Professional	United States
<a href="https://www.nhs.uk/conditions/bedwetting/">https://www.nhs.uk/conditions/bedwetting/</a>	Government	United Kingdom
<a href="https://www.bedwettingtherapy.com/all-about-bedwetting/">https://www.bedwettingtherapy.com/all-about-bedwetting/</a>	Commercial	United States
<a href="https://thebedwettingdoctor.com/pages/about-bedwetting">https://thebedwettingdoctor.com/pages/about-bedwetting</a>	Commercial	United States
<a href="https://www.nationwidechildrens.org/family-resources-education/700childrens/2018/02/bedwetting-5-common-reasons-why-children-wet-the-bed">https://www.nationwidechildrens.org/family-resources-education/700childrens/2018/02/bedwetting-5-common-reasons-why-children-wet-the-bed</a>	Professional	United States
<a href="https://caringforkids.cps.ca/handouts/behavior-and-development/bedwetting">https://caringforkids.cps.ca/handouts/behavior-and-development/bedwetting</a>	Nonprofit	Canada
<a href="https://parentingscience.com/bed-wetting/">https://parentingscience.com/bed-wetting/</a>	Nonprofit	United States
<a href="https://myhealth.alberta.ca/Health/Pages/conditions.aspx?hwid=hw213026">https://myhealth.alberta.ca/Health/Pages/conditions.aspx?hwid=hw213026</a>	Government	Canada
<a href="https://www.juniormagazine.co.uk/wellbeing/bedwetting-9-golden-rules-for-parents/">https://www.juniormagazine.co.uk/wellbeing/bedwetting-9-golden-rules-for-parents/</a>	Others	United Kingdom
<a href="https://health.ucdavis.edu/children/patients_family_resources/bedwetting-solutions.html">https://health.ucdavis.edu/children/patients_family_resources/bedwetting-solutions.html</a>	Professional	United States
<a href="https://kidspluspgh.com/doctors-notes/bed-wetting/">https://kidspluspgh.com/doctors-notes/bed-wetting/</a>	Commercial	United States
<a href="https://www.parents.com/kids/sleep/bed-wetting/best-bedwetting-solutions/">https://www.parents.com/kids/sleep/bed-wetting/best-bedwetting-solutions/</a>	Others	United States
<a href="https://www.healthnavigator.org.nz/health-a-z/b/bed-wetting-children/">https://www.healthnavigator.org.nz/health-a-z/b/bed-wetting-children/</a>	Nonprofit	New Zealand
<a href="https://www.mountsinai.org/health-library/special-topic/bedwetting">https://www.mountsinai.org/health-library/special-topic/bedwetting</a>	Professional	United States
<a href="https://www.pregnancybirthbaby.org.au/bedwetting-in-children">https://www.pregnancybirthbaby.org.au/bedwetting-in-children</a>	Government	Australia
<a href="https://bedwettingstore.com/pages/learning-center-about-bedwetting">https://bedwettingstore.com/pages/learning-center-about-bedwetting</a>	Commercial	United States
<a href="https://www.abct.org/fact-sheets/bed-wetting/">https://www.abct.org/fact-sheets/bed-wetting/</a>	Nonprofit	United States

### Quality Study

The quality and validity of the websites were assessed using the DISCERN score instrument. This is a validated system designed by the United Kingdom National Health Service to allow information providers and consumers to determine the quality of health information.<sup>15</sup> It comprises three sections with 16 questions; the first 8 questions relate to the reliabil-

ity of the publication and 7 questions address specific details about the information related to treatment options. The final question assesses the overall quality of a website. The total possible score is 75 points for the first two sections and an overall quality rating out of 5 points for the third section. Previous studies have categorized the quality of published content by scores into “excellent” (63–75), “good” (51–62),

“fair” (39–50), and “poor” (< 39).<sup>7,16</sup> The websites were scored independently by two of the authors according to the DISCERN score instrument.

### Accuracy Study

The accuracy of the information provided by the websites was independently assessed by three authors who are specialists in pediatric surgery and urology, as well as a pediatric nephrologist, using a scoring system previously described in the literature.<sup>3</sup> The accuracy of the information provided by the websites was graded on a scale of 1 to 5, in which 1 represents that the examiner agreed with less than 20% of the information, 2 represents 21 to 40% agreement, 3 represents 41 to 60% agreement, 4 represents 61 to 80% agreement, and 5 represents 81 to 100% agreement. The ICCS guidelines on the management of enuresis were used for the judgement of accuracy over the online information on the management and evaluation of children with enuresis.<sup>11</sup> If the advice given by a website was not mentioned by the ICCS, as long as it was not medically incorrect, it was still considered accurate. However, if the advice given contradicted or deviated from that suggested by the ICCS, the website was considered inaccurate.

The websites were classified into five categories: professional, nonprofit, commercial, government, and other. A comparison of the readability, quality, and accuracy scores across website categories was performed.

### Statistical Methods

All the data were statistically analyzed and compared. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS; IBM, USA), Version 26. Descriptive statistics are given as the number of units (*n*) and the percentage (%). Data are expressed as the mean and standard deviation. Continuous variables were analyzed using the Student's *t*-test and analysis of variance test, as appropriate. A *p*-value less than 0.05 was considered statistically significant.

## Results

### Websites Generated and Categories

A total of 30 websites were assessed and included in the analysis based on the chosen search queries and engines (→Table 1). These websites were classified into five categories: professional (*n* = 13, 43.3%), nonprofit (*n* = 8, 26.7%), commercial (*n* = 4, 13.3%), government (*n* = 3, 10%), and other (*n* = 2, 6.7%). The majority of the websites originated in the United States (*n* = 21, 70%), whereas the rest of them originated in the United Kingdom (*n* = 3, 10%), Australia (*n* = 3, 10%), Canada (*n* = 2, 6.7%), and New Zealand (*n* = 1, 3.3%).

### Readability

The mean readability scores across the 30 websites were a Gunning fog score of  $12.1 \pm 4.3$  (range: 6.9–27.0), SMOG index score of  $14.1 \pm 4.3$  (range: 10.0–26.8), and Dale–Chall score of  $8.1 \pm 1.3$  (range: 5.9–11.6). The information was considered difficult for the public to comprehend, with the readability scores corresponding to adjusted grade levels of high school seniors, need of 13 to 14 years of formal education, and grades 8 to 9, respectively.

Readability scores were further analyzed by website category (→Table 2). Although there were no statistically significant differences between the Gunning fog (*p* = 0.094), SMOG (*p* = 0.186), and Dale–Chall (*p* = 0.127) scores across website categories, professional websites tended to have higher readability scores, rendering them less readable by the public. The readability scores were also subdivided according to country of origin; Canadian websites demonstrated the lowest readability scores across the three scoring systems (→Table 3).

### Quality

The mean summed DISCERN score for assessing the quality and validity of online health information about enuresis was  $41 \pm 11.6$  (range: 26–64) out of 75. Only three websites were

**Table 2** Readability according to websites categories

	Professional ( <i>n</i> = 13)	Nonprofit ( <i>n</i> = 7)	Commercial ( <i>n</i> = 4)	Government ( <i>n</i> = 3)	Others ( <i>n</i> = 2)	<i>p</i>
Gunning fog score	$14.5 \pm 5.4$	$10.3 \pm 1.3$	$10.6 \pm 1.3$	$9.0 \pm 1.9$	$11.4 \pm 1.5$	0.09
SMOG index score	$16.4 \pm 5.9$	$12.0 \pm 0.9$	$13.1 \pm 1.1$	$11.9 \pm 0.9$	$13.2 \pm 0.5$	0.19
Dale–Chall score	$8.8 \pm 1.7$	$7.4 \pm 0.6$	$8.1 \pm 0.4$	$7.2 \pm 0.2$	$7.4 \pm 0.2$	0.13

**Table 3** Readability according to websites origin

	Australia ( <i>n</i> = 3)	Canada ( <i>n</i> = 2)	New Zealand ( <i>n</i> = 1)	United Kingdom ( <i>n</i> = 3)	United States ( <i>n</i> = 20)	<i>p</i>
Gunning fog score	$18.2 \pm 8.9$	$7.5 \pm 0.8$	10.3	$11.8 \pm 0.9$	$11.9 \pm 3.2$	0.06
SMOG index score	$21.2 \pm 7.6$	$11.0 \pm 0.4$	12.7	$13.2 \pm 0.9$	$13.7 \pm 3.6$	0.04
Dale–Chall score	$9.9 \pm 2.5$	$7.0 \pm 0.1$	7	$7.5 \pm 0.4$	$8.1 \pm 1.1$	0.07



**Table 4** Quality and accuracy according to websites categories

	Professional (n = 13)	Nonprofit (n = 7)	Commercial (n = 4)	Government (n = 3)	Others (n = 2)	p
DISCERN score	43 ± 12.4	41.4 ± 12.4	33.8 ± 5.2	44.3 ± 17	36.5 ± 2.1	0.68
Accuracy score	3.3 ± 0.4	3.4 ± 0.8	3.1 ± 0.5	3.5 ± 0.5	2.5 ± 0.7	0.34

considered to be of excellent quality (DISCERN score > 62), and most of these were professional websites (66.7%). However, more than half of the websites (n = 18, 60%) were considered to be of poor quality (DISCERN score < 39). Four of the websites (13%) were considered to be of good quality (DISCERN score > 50), and the rest were of fair quality (16.7%; DISCERN score 39–50).

Commercial websites were of the poorest quality (DISCERN score 33.7 ± 5.1), although there were no statistically significant differences in DISCERN scores across website categories (p = 0.675). Websites generally scored well in providing their aims and identifying treatment benefits and options, whereas they lacked references and information regarding treatment risks and mechanisms (→ Table 4).

### Accuracy

As independently determined by three assessors (two specialists in pediatric surgery and urology and one pediatric nephrologist), the mean accuracy score for website content was 3.2 ± 0.6 (range: 2–5) out of 5. Only three websites (10%) obtained a score of 5 by at least one reviewer, indicating 100% agreement about the accuracy of the content. However, 4 out of the 30 websites (13.3%) obtained scores of 2 by at least one reviewer, indicating less than 40% agreement with the content with reference to the ICCS guidelines.

Professional, nonprofit and government websites demonstrated similarly better accuracy scores at 3.3 ± 0.4, 3.4 ± 0.8, and 3.5 ± 0.5 out of 5, respectively. Other websites (including newsfeeds from social media, blogs, etc.) tended to have lower accuracy scores than the others (2.5 ± 0.7, p = 0.335), although this did not reach statistical significance (→ Table 4).

### Discussion

The widely accessible and convenient sources of information provided by the internet have transformed the health-information-seeking behavior of patients and parents. Instead of the traditional behavior of solely relying on health care professionals, there has been a shift to self-education online regarding various health topics.<sup>1–5</sup> This information, albeit easily accessible, is of variable quality and accuracy; hence, it could be misleading to patients and parents.<sup>3,9</sup> Furthermore, the language and presentation formats used, as assessed by readability, may potentially affect the ease of comprehension by the general public. Studies assessing the readability, quality, and accuracy of online health information have been performed for cancer treatments, orthopaedic conditions, and hypospadias, demonstrating the variability and inadequacy of standard of the information.<sup>3,6,7</sup> Whitley and

Kieran reported in a recent study that a vast majority of electronically available information on enuresis was layman-derived and not congruent with ICCS recommendations. These websites are more likely to recommend alternative medicine therapies and potentially cause delays in subspecialist evaluation.<sup>17</sup> To the best of our knowledge, our current research is the first study of its kind using multidimensional assessment of the readability, quality, and accuracy of health information on enuresis with a multitude of validated instruments.

Nocturnal enuresis (enuresis), or bedwetting, is a common problem in children in which episodes of urinary incontinence happen during sleep. The prevalence of enuresis at 7 years of age is 10 to 15%. This proportion decreases to 5% at 10 years of age and further to less than 1% at 18 years of age.<sup>12</sup> Enuresis is associated with a detrimental impact on the quality of life, academic performance, emotions, and social lives of affected children and their families. Previous surveys have revealed that enuresis is the third most disruptive life events to children's lives, ranked only after divorce and parental conflict.<sup>18</sup> Although it is a common condition, enuresis is not commonly discussed openly among parents of affected children, nor in society, due to the fear of stigmatization. Because of parental misconceptions and unawareness of what health care professionals can offer, many parents do not seek help.<sup>19</sup> Various studies from around the world have demonstrated that only a minority of children with enuresis seek medical attention and receive interventions.<sup>13,20,21</sup> Instead of seeking medical attention early, parents tend to resort to the internet to acquire knowledge and advice. Therefore, it is crucial for online information to be of adequate readability, quality, and accuracy in order to help parents understand the pathophysiology behind enuresis and its disease progression to form effective coping strategies.<sup>19</sup>

The main findings of this study were that the comprehension of the available online information related to enuresis is considered difficult for the public, with high mean readability scores. According to the National Adult Literacy Survey in the United States, the public generally has literacy skills that test at or below high school reading levels. Patients and parents with lower education levels and literacy are more likely to misunderstand written health material and have limitations in shared decision-making.<sup>22,23</sup> The currently available online health information on enuresis, according to the assessment by this research, is at the comprehension level of a high school senior and up to need of 13 to 14 years of formal education. Therefore, it is considered difficult for the public to understand. This echoes the findings of similar

studies on other diseases, information about which tends to be written in ways that are too complex for the public to appreciate.<sup>3,6,17</sup> Health care professionals should take this into account and try to prepare health information in layman's language as much as possible. On the other hand, the quality and accuracy of online information related to enuresis was also found to be suboptimal. Commercial websites were of the poorest quality and accuracy, and many of them were found to be biased toward marketing medical products. Shervington et al demonstrated recently that doctor–parent communication has become more challenging and time consuming because of misleading and inaccurate health information available online.<sup>9,10</sup> Health care professionals should be aware of the content of these websites and proactively guide these “informed” parents and patients to select suitable sources of information. Karatas et al highlighted a framework of patient-centered communication approaches and constructive strategies for interacting with parents regarding online health information, through which parents were directed to reliable websites and shared decision-making was enhanced.<sup>4</sup> The addition of accountable references and more information regarding treatment risks and mechanisms would be helpful in improving the overall quality of health information websites. Furthermore, non-profit medical societies should be encouraged to produce layman-friendly disease and treatment information on their official websites to draw the public's attention from commercial and professional websites that may be inaccurate and difficult to comprehend.

On the other hand, social media has been gaining its role for parents nowadays to seek online health information. Parents most commonly use social media for information about parenting such as infant feeding practices, bathing, etc. They also would search for information about specific health concerns both before and after a medical diagnosis for their child. Many parents, across different ethnicity and various level of literacy, are engaged with social media with the aim of obtaining social support and lived experience from other parents in addition to obtaining concrete health information.<sup>24,25</sup> Previous scoping review by Frey et al demonstrated that many parents regarded social media as a safe and private place to discuss sensitive issues about health condition of their children and able to obtain reassurance as well as comprehensible knowledge based on experience from other parents.<sup>24</sup> Yet, social media is also being criticized for several drawbacks including lack of expert input, lack of a proper fact-checking mechanism, and not as reliable as traditional websites or news media. While social media remains a double-edged sword with potentials and challenges for both health care professionals and parents, more effort and attention should be paid to make good use of it in the face of technology advancement.

We acknowledge that this study has several limitations. One shortcoming of the current study is the inclusion of English websites for analysis only, which may lead to a bias of study findings toward English-speaking/reading parents. Furthermore, temporal trends on the internet were not taken into account, with only a single time point used for the

assessment of the quality, readability, and accuracy of online health information. The assessment by the current study was text-only and did not take into account the role of other visual materials, such as pictures or videos, which may have a significant positive impact on the understanding of health topics. Furthermore, the small sample size of websites for some of the categories may potentially weaken the statistical power of the analysis. However, this study highlighted the need for more patient-/parent-friendly online health information from various nonprofit organizations concerned with pediatric urological conditions. Finally, the accuracy analysis of the study could have been strengthened through the expertise of additional pediatric urologists or nephrologists, thus diluting the effect of interrater variability.

## Conclusion

Online information about nocturnal enuresis exists for parents; however, most websites are of suboptimal quality, readability, and accuracy. Pediatric surgeons should be aware of parents' health-information-seeking behavior and be proactive in guiding parents to identify high-quality resources.

### Funding

None.

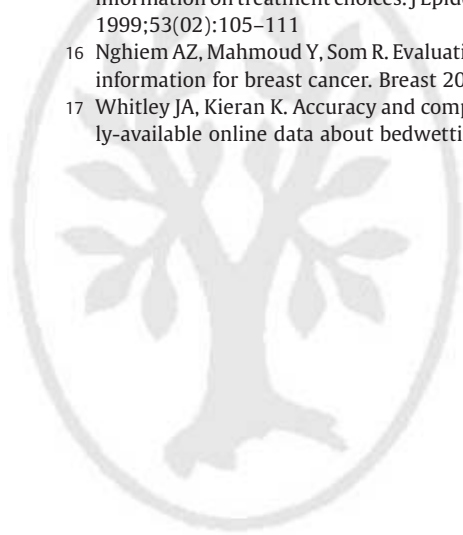
### Conflict of Interest

None declared.

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