

Do the platforms where professional health organizations inform the public answer all the needed questions?

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ABSTRACT

Background We aimed to assess the comprehensiveness of patient information websites from academic organisations regarding the most searched statements on “nocturia”. Additionally, we aimed to analyse the frequency of these statements based on their classification as definition, aetiology, diagnosis, or treatment.

Methods The website www.answerthepublic.com was used to retrieve outputs related to nocturia. After applying exclusion criteria, the outputs were searched within the American Urological Association (AUA) and European Association of Urology (EAU) patient information websites, and the comprehensiveness scores were evaluated.

Results The search engine retrieved 615 results, of which 67 queries were eligible for analysis. The most searched query was “nocturia definition”, with 6,600 average monthly clicks. The distribution of analysed queries was 16.4% for definition, 46.3% for aetiology, 11.9% for diagnosis, and 25.4% for treatment. The AUA and EAU websites had median comprehensiveness scores of 2.0 (IQR: 3.5) and 3.0 (IQR: 4.0), respectively, with no significant relation found ($p=0.438$). The selected websites did not cover a substantial proportion of searched items related to nocturia.

Conclusions Although the patient information websites provided by prominent academic organisations offer valuable information, there needs to be more clarity between the information they provide and the public’s concerns regarding nocturia. Tools like www.answerthepublic.com may provide valuable insights into public concerns but have limitations.

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INTRODUCTION

Waking up at night to urinate is defined as nocturia, which tremendously affects the quality of life. It can cause sleep deprivation.¹ Complications such as bone fractures due to falls or cardiovascular events are also significant.² Nocturia is age-dependent, and almost one in two men experiences it after age 70.³ Various factors are responsible for nocturia and can also be multifactorial. While lower urinary tract disorders are a common source of nocturia in the elderly, cardiovascular or neurological diseases, obesity, hypertension, obstructive sleep apnea syndrome, and certain medications like diuretics can also be responsible.⁴ Patients may consider nocturia as an expected consequence of normal ageing. These patients may not seek any treatment options. However, even conservative treatment options may make a difference in addition to medical therapy.⁵

Proper patient information is essential, especially for multidimensional problems such as nocturia. Today, information technology has reinforced easy access to patient information from various sources.⁶ Google and online video streams are popular sources patients use to find medical information. However, when evaluated in an academic context, the accuracy and quality of the information they provide may be limited due to the uncontrolled upload of context from various sources.⁷

Patient information materials from academic organisations are reliable, updated, and unbiased. They are written in lay language, making them easy to understand.⁸ Although comprehensive, they may only cover some areas and concerns from the patient's perspective.⁹ To assess patients' perspectives, www.answerthepublic.com can be a valuable free online tool. It captures the most searched queries on Google, the leading global search engine, and is the primary gateway for patients seeking health information.^{10,11} In this study, we aimed to evaluate the comprehensiveness of patient information websites from academic organisations for the search term "nocturia" using the outputs retrieved from the www.answerthepublic.com website. Additionally, we aimed to classify these outputs based on their type (definition, aetiology, diagnosis, or treatment) and analyse how frequently they were searched for.

MATERIAL AND METHODS

On June 2, 2023, the search term "nocturia" was entered into the website www.answerthepublic.com,

with English selected as the language option and the USA chosen as the location. The search results were exported as a CSV file and sorted by their search volume. Absolute duplicates, results without search volume data, non-English outputs, and irrelevant queries were removed. Only the most searched one was kept for outputs with similar meanings. The remaining outputs were classified as definition, aetiology, diagnosis, and treatment.

After applying the exclusion criteria, the remaining outputs were searched to determine whether they had been included in the patient information materials on the American Urological Association (AUA) and the European Association of Urology (EAU) websites.

We have newly developed a 5-item scoring system for assessing the comprehensiveness of the information provided by AUA and EAU patient information websites. The scoring criteria were as follows:

1. Not presented: The website's content must mention the statement or question.
2. Only mentioned: The statement or question is mentioned, but no further details are provided.
3. Incomplete: The statement or question is partially answered.
4. Substantial: The statement or question is answered with enough detail and explanation, but there may be minor gaps or room for improvement.
5. Comprehensive: The statement or question is answered with detailed information and explanations to fully answer or clarify the topic.

Statistical analysis

Descriptive statistics, including frequencies and percentages, were used to summarise the distribution of queries across the categories. Median comprehensiveness scores and interquartile ranges (IQR) were calculated for each type and the selected websites. The Mann-Whitney U test was used to compare the comprehensiveness scores between the AUA and EAU websites. A p-value of less than 0.05 was considered statistically significant. All statistical analyses were performed using SPSS version 26.0.

RESULTS

The www.answerthepublic.com search engine retrieved 615 results for nocturia, including 90 questions, 81 prepositions, 49 comparisons, 380

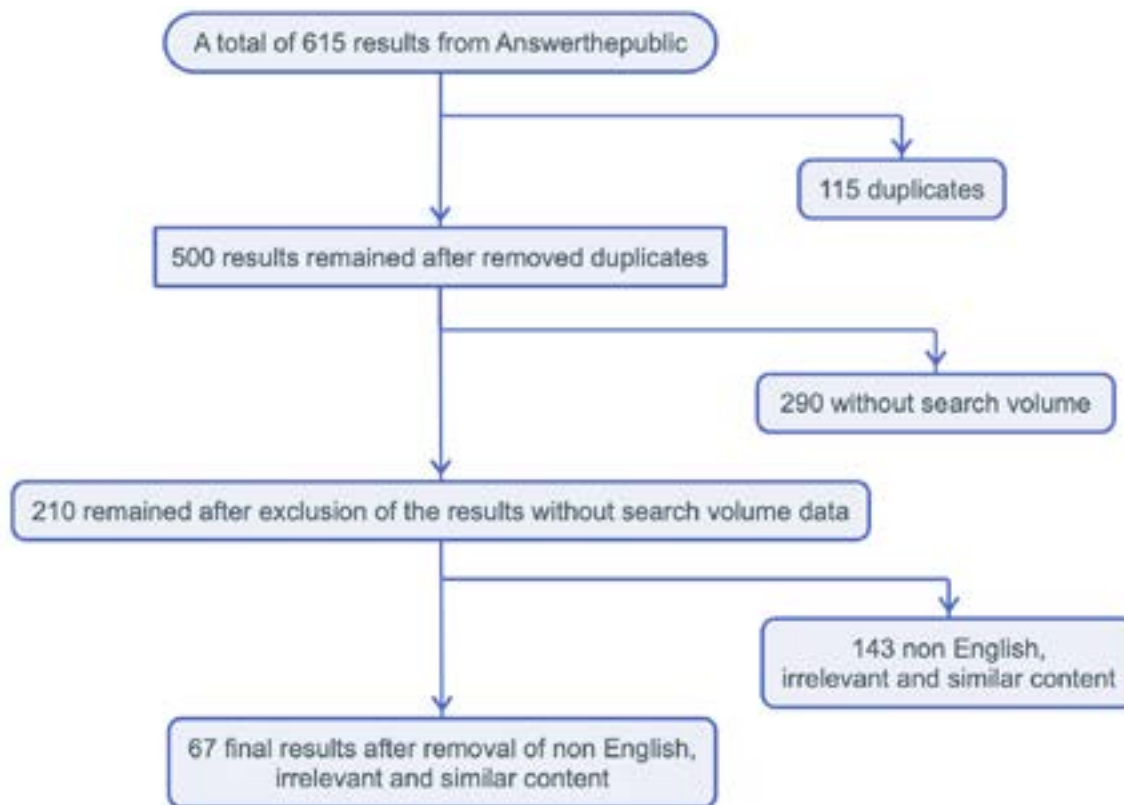


Figure 1. Applying exclusion criteria to the results retrieved from www.answerthepublic.com

alphabetical, and 15 related searches. After applying the exclusion criteria, the number of outputs was reduced to 67 for further analysis (Figure 1).

The distribution of the analysed outputs was as

follows: 11 (16.4%) were related to the definition of nocturia, 31 (46.3%) focused on aetiology, 8 (11.9%) were about diagnosis, and 17 (25.4%) were concerned with treatment options.

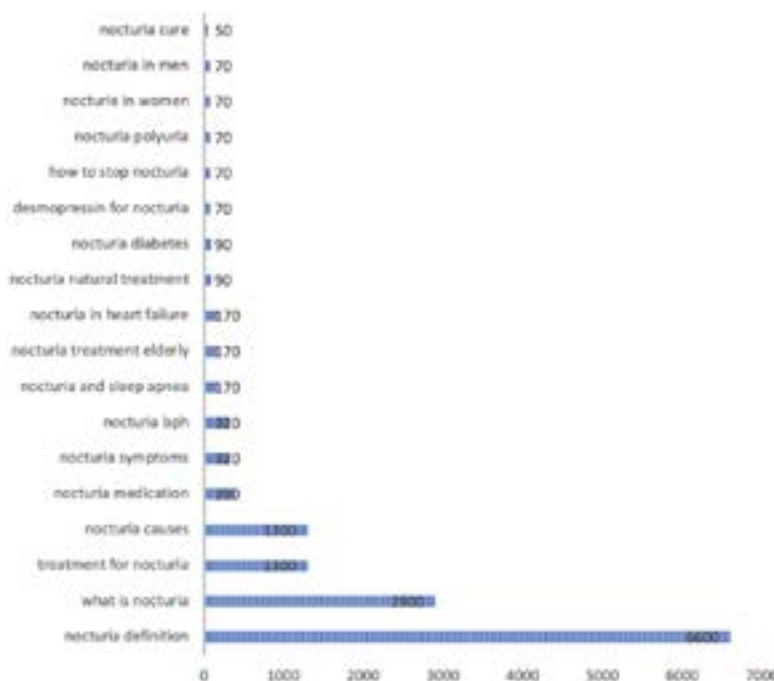


Figure 2. Results with 50 or more clicks per month (search volume/month).

Table 1. Comprehensiveness of information on AUA and EAU patient information websites by classification

Classification	Median comprehensiveness score (IQR)		P-value
	AUA	EAU	
Definition	4 (2)	4 (2)	1
Aetiology	1 (1)	1 (2)	0.56
Diagnosis	3 (1)	3 (1)	1
Treatment	5 (4)	5 (3)	0.85
Total	2 (3.5)	3 (4)	0.438

IQR: interquartile range, AUA: American Urology Association, EAU: European Association of Urology.

The most frequently searched query was “nocturia definition,” with an average of 6,600 clicks per month. Results with 50 or more clicks per month were presented in Figure 2.

In terms of the comprehensiveness of the information provided on patient information websites, AUA had a median comprehensiveness score of 2.0 (IQR: 3.5). In contrast, the EAU had a slightly higher median score of 3.0 (IQR: 4.0). With a p-value of 0.438, no significant relation was found between the comprehensiveness scores of the AUA and EAU websites.

The analysis revealed that AUA patient information websites received a score of “1” (not mentioned) for 27 (40.30%) of the queries, with 70.37% of these relating to aetiology, 18.52% to treatment, 7.41% to diagnosis, and 3.7% to definition. Similarly, EAU patient information websites scored “1” for 26 (38.81%) queries, with 73.08% focusing on aetiology, 15.38% on treatment, 7.69% on diagnosis, and 3.85% on the definition.

The comprehensiveness of the information provided by AUA and EAU patient information websites, according to each classification, was summarised in Table 1. No statistically significant relationship was found between the comprehensiveness score and classification categories.

DISCUSSION

Nocturia is a prevalent symptom, especially in older people. It is not a disease but a consequence of illness or ageing.^{1,12} Since it can be difficult for patients to determine the underlying cause independently, they may find it convenient to search the web.¹³ In this study, we found nocturia is a point of interest in online patient information searching with substantial monthly clicks. We classified the most searched items

related to nocturia and found that the etiological factors were the leading class, with a rate of 46.3%.

Assessment of patients’ perspectives and concerns is vital for developing high-quality patient information materials. We used www.answerthepublic.com to retrieve the most searched items regarding nocturia on the web. This tool was used in a study by Dey *et al.*¹⁴ to search for public perception and priorities in rheumatology. They found the tool effective and inexpensive compared to traditional methods for designing research priorities.¹⁴ To the best of our knowledge, this is the first study to use www.answerthepublic.com to search for patients’ perspectives on the concept of patient information. The results of the study may increase the awareness of health professionals regarding patients’ concerns related to etiological factors.

According to the results from this tool, the most searched item on Google needs to match the academic websites assessed in the present study comprehensively. Although etiological factors are commonly explored, these websites focus on diagnosis, definition, and treatment. This discrepancy may be due to complex causalities related to nocturia, including lower urinary tract disorders, sleep problems, systemic disease, and medications. In this broad spectrum of conditions, any given source of information may fail to cover all aspects. An inherent bias may also be possible since these organisations are prone to providing interventions instead of preventive medicine. From a patient-centred view, preventive medicine and searching for causality may be more critical.¹⁵

No statistically significant difference was observed regarding scores between AUA and EAU. This reflects a consensus between the two associations regarding nocturia patient information. This consensus is most likely due to their tendency to share information on intervention rather than preventive measures, as mentioned previously.

The main strength of our study is the use of www.answerthepublic.com as a powerful tool. However, some things could be improved related to our research. Firstly, since Google is not limited to patients, other stakeholders such as researchers or content producers may also contribute to the data, contaminating the results. The lack of validation for our comprehensive score may be another limitation and could lead to subjective results. The contribution of only two websites may be another limitation, and adding more websites may change the results.

Future studies should include assessing special patient groups, such as older age or patients using diuretics. These patients may require unique information that these websites have not covered exclusively. Furthermore, utilising validated tools can enhance the precision of feedback necessary for organisations to generate patient information.

CONCLUSIONS

In conclusion, this study underscores the importance of aligning online health information with the public interest. We identified a discrepancy between the public's interest in nocturia's etiological factors and the primary focus of academic resources on diagnosis and treatment. Tools like www.answerthepublic.com provide valuable insights into public concerns but have limitations, such as influence from non-patient stakeholders. Lastly, future research should consider the unique informational needs of specific patient groups, aiming for a more comprehensive and patient-centred health information landscape.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

The protocol of the study was approved by the Medical Ethics Committee of Bursa Uludag University, Bursa, Turkey. (Decision number: 2023-11/6, date: 16.05.2023).

Authors' Contribution

Study Conception: BC; Study Design: BC; Literature Review: BC, NK; Critical Review: BC, NK; Data Collection and/or Processing: BC, NK,;

Analysis and/or Data Interpretation: BC, NK; Manuscript preparing: BC, NK.

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