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OUTPATIENT UROLOGY

Digital health engagement among urological patients in four European countries: findings from an international cross-sectional survey by the European Association of Urology Section of Outpatient and Office Urology

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Introduction Digital tools, including online information sources and medical apps, are increasingly woven into patient care. This study aimed to assess internet use, social media habits, online health information seeking, trust in online health resources, medical app use and willingness to use medical apps when prescribed, and attitudes toward electronic patient records (EPRs) among urology outpatients in four European countries.

Material and methods A multicenter, cross-sectional survey was conducted in urology outpatient practices in Poland, Greece, Hungary, and Germany. Each center enrolled ~50 consecutive patients. In total, 184 participants completed an anonymous paper questionnaire between January 2, 2025 and May 30, 2025. The 12-item questionnaire (developed following a PubMed literature review and CHERRIES guidance) combined multiple-choice and 10-point rating items. Group differences and associations were explored using χ^2 tests, Kruskal–Wallis tests, and Spearman rank correlations as appropriate.

Results Participants were 79.35% male and 20.65% female; mean age 54.0 years (SD 16.4). Internet use was near universal (91.86%); 72.8% used the internet several times per day, 11.41% once daily, 7.6% weekly, and 7.6% reported never using it. YouTube (58.7%) and Facebook (54.35%) were the most frequently used social platforms, followed by Instagram (36.41%), TikTok (21.74%), and X (formerly Twitter) (18.48%); 15.76% reported no social media use. Trust in online health information was modest (mean 4.32/10, SD 2.3) and highest in Germany (5.08); education did not correlate with trust in any country (Spearman p ≥0.07).

Conclusions Among European urology outpatients, internet engagement is ubiquitous, but perceived usefulness, trust, and app adoption vary substantially across countries.

Key Words: digital health ‹› social media use ‹› online health information ‹› medical apps ‹› electronic patient records

INTRODUCTION

Use of the internet and mobile applications has the potential to enhance health literacy and support patient-centered care [1]. Interest in digital health is growing among urological patients [2], and wearables and medical apps are increasingly used across subspecialties such as urogynecology, endourology, pediatric urology, and urooncology [3]. Given that many urology patients manage chronic conditions and recurrent decision points, they are well positioned to benefit from digital tools. However, concerns regarding the quality of online health information [4] and the reliability of medical applications [5] persist, even as patients show increasing openness toward multimedia-enhanced and digitally supported care pathways [6, 7].
Digital technologies can further help close access gaps by enabling remote consultations, home-based monitoring, and sustained patient engagement–particularly in conditions such as prostate cancer, urinary incontinence, and urolithiasis, where timely care can influence outcomes and equity [8, 9].
Moreover, online engagement among urology patients has been associated with better understanding of their diagnoses after consultations, suggesting that digital interaction can foster patient empowerment and enhance shared decision-making [10].
Urological patients also show strong acceptance of telemedicine, with most expressing willingness to engage in virtual visits regardless of diagnosis or risk factors–supporting continuity of care and reducing infection-related risks [11, 12].
Nevertheless, active expert involvement in the design and continuous evaluation of digital health applications remains essential to ensure safety, data accuracy, and patient privacy [5].
The present study aimed to characterize the use and acceptance of digital health tools among urology outpatients in four European countries, quantify trust in online health information, and identify demographic correlations of engagement. We hypothesized that uptake patterns would differ by country and that physician endorsement could represent a key lever for adoption.

MATERIAL AND METHODS

We conducted a multicenter cross-sectional survey in four outpatient urology clinics in Poland, Greece, Hungary, and Germany. All participating centers were office-based urology practices providing routine outpatient care across benign, oncological, and andrological indications. Clinics were selected following critical evaluation by the EAU Section of Outpatient and Office Urology (ESOU) to represent typical ambulatory urological practice balanced for urban and rural settings and to ensure feasibility of consecutive patient inclusion.
Each site enrolled approximately 50 consecutive adult outpatients attending routine consultations between 2 January and 30 May 2025. Participation was voluntary and anonymous; surveys were completed on paper after the visit and returned at the reception desk.
Eligibility: adult urology outpatients (≥18 years) able to complete the questionnaire in the local language who consented to anonymous participation. Exclusion: acute distress precluding participation or prior inclusion in the pilot phase.
A small pilot group of five patients per site was used to test clarity and comprehensibility before formal enrollment. Thereafter, all consecutive patients were invited without further preselection. Each center recorded the numbers approached, eligible, and completed, with refusal defined as eligible patients declining after information was provided. Across sites, 214 patients were approached, 193 were eligible, and 184 completed the survey (completion rate = 95%). Site-level completion ranged from 91% to 98%.

Clinic service profile and case mix

To document representativeness, each outpatient center classified respondents by main indication: oncological, andrological, or benign/functional (including lower urinary tract symptoms [LUTS] and urolithiasis). The overall composition was oncology 41% (75/184), andrology 27% (50/184), and benign/functional 32% (59/184). Case-mix distributions were broadly similar across countries (Suppl. Table 1).
A formal power calculation was not performed, as no prior multicountry data were available for digital engagement parameters in urology outpatients. Therefore, each center aimed to recruit approximately 50 consecutive patients to allow exploratory between-country comparisons while maintaining feasibility, consistent with prior cross-sectional surveys in digital health research. The 12-item questionnaire was developed following a PubMed-based literature review and CHERRIES guidance [20], and items were adapted from previously validated instruments in rheumatology, gynecology, and surgical contexts to ensure content validity. A detailed mapping of CHERRIES checklist items is provided in Suppl. Table 2. The draft survey was reviewed by two urologists and one health services researcher to assess clarity and face validity and was pilot-tested with five patients to confirm comprehensibility and completion time. Internal consistency across the

four digital-engagement items (internet use frequency, perceived usefulness, trust, and literacy) was acceptable (Cronbach's α = 0.79). Construct validity was supported by a moderate positive correlation between literacy and perceived usefulness (ρ = 0.46, $p < 0.001$). The full questionnaire is provided in Supplementary Materials.

Missing data were minimal (<2% per item) and were managed by pairwise deletion in descriptive and comparative analyses.

Items included multiple-choice questions and a 10-point Likert scale to assess internet use frequency, social media platforms, health information topics sought online, perceived usefulness of the internet for health decisions, trust in online health information, use of medical apps and willingness to use an app on prescription, health information literacy, and attitudes toward electronic patient records (EPRs).

Statistical analysis

Descriptive statistics were used for all variables. Between-group differences were examined using chi-square tests for categorical variables and Kruskal–Wallis tests for ordinal or continuous 10-point ratings. When the assumptions for the chi-square test were not met (i.e., expected frequencies <5), Fisher's exact test was used instead.

The primary outcomes were the perceived usefulness of the internet for health decision-making and trust in online health information. Secondary outcomes included internet use frequency, health-information literacy, willingness to use medical apps if prescribed, and support for electronic patient records (EPRs). A medical app was defined as a software application that enables medical or health-related functions, such as diagnosis, monitoring, or supporting clinical decision-making, and may be regulated as a medical device depending on its intended use.

For exploratory country-level comparisons, multiplicity was addressed using Holm–Bonferroni correction. All analyses were two-sided with $p < 0.05$ considered significant. Analyses were performed using SPSS v29.0 (IBM Corp., Armonk, NY).

Due to the limited per-country sample size, no multivariable regression analyses were conducted; all country-level comparisons should therefore be interpreted as exploratory and unadjusted.

All percentages are reported as n/N, where N refers to respondents who answered the respective item. "No information" indicates item non-response. Item-level missingness was <2% and handled by pairwise deletion. For multi-response items, percentages refer to the proportion of respondents selecting each option among those who answered the question.

All figures and tables were standardized for consistency. Figure captions specify the construct measured, scale anchors for 10-point Likert ratings, and sample sizes per country (Germany n = 49, Greece n = 47, Hungary n = 43, Poland n = 45). Bars represent median values with interquartile ranges, and all Likert-type scales are plotted on uniform 0–10 axes. Mean trust and usefulness scores (~4–5/10) are described as "modest" or "low." Percentages in categorical figures are expressed on 0–100% scales. Multi-response items are clearly indicated, and "No information" denotes item non-response.

Bioethical standards

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki and approved by the local ethics committee (approval number: 25-12262-BO). No personal or clinical identifiers were collected, and participation was fully voluntary.

RESULTS

Cohort characteristics

A total of 184 patients participated; 79.35% were male (n = 146) and 20.65% female (n = 38). The mean age was 54.0 years (SD 16.4), ranging from 44.56 years in Hungary to 60.94 years in Germany. Educational attainment was heterogeneous: 29.89% reported a university or higher-education degree, 25.00% reported a high school diploma or vocational training, and 22.83% reported a university of applied sciences degree. Tables 1–2 provide country-level distributions.

Recruitment and completion rates are shown in Suppl. Figure 1. The overall completion rate among eligible patients was 95.3%, and the case mix by indication is summarized in Suppl. Table 1.

Internet use frequency and platforms

Overall, 91.86% of patients reported using the internet; 72.8% used it several times per day, 11.41% once daily, 7.6% weekly, and 7.6% never (Table 3). Education correlated with internet use frequency in Greece and Poland (Spearman, $p < 0.005$), but not in Germany ($p = 0.44$) or Hungary ($p = 0.25$). Full statistical details are summarized in the table legends.

Social media use was common: YouTube (58.7%) and Facebook (54.35%) were the most frequent, followed by Instagram (36.41%), TikTok (21.74%), and X (formerly Twitter) (18.48%); 15.76% reported using none of these platforms (Table 4).

Online health information seeking

Approximately 90% reported searching the internet for health information. The most frequently sought topics included physicians (59%), diseases/symptoms (51%), medications (46%), treatment options (35%), and clinics/practices (32%); 19% consulted disease-specific sites, 9% sought self-help group information, 7% used patient forums, and 12% reported never searching for health information online (Table 5). Topic distributions did not differ significantly between countries (χ^2, ns).

Table 1. *Demographic and age distribution of the study cohort by country*

Country	N	Male	Female	Age mean	Age SD	Median
Germany	49	42 (85.71%)	7 (14.29%)	60.94	13.6	62.0
Greece	47	35 (74.47%)	12 (25.53%)	55.23	18.97	54.0
Hungary	43	34 (79.07%)	9 (20.93%)	44.56	13.99	44.0
Poland	45	35 (77.78%)	10 (22.22%)	54.18	14.54	53.0
TOTAL	184	146	38	54.0	16.4	56.0

Table 2. *Distribution of educational levels among urology outpatients by country*

Country	N	No school-leaving certificate (%)	General secondary school (%)	Secondary school diploma (%)	High school diploma / vocational diploma (%)	University of applied sciences (%)	Polytechnic secondary school (%)	University / higher education institution (%)	No information (%)
Germany	49	0.0	6.12	16.33	20.41	30.61	0.0	24.49	2.04
Greece	47	0.0	0.0	23.4	40.43	27.66	8.51	0.0	
Hungary	43	0.0	0.0	0.0	37.21	18.6	0.0	44.19	
Poland	45	0.0	0.0	17.78	2.22	13.33	13.33	53.33	
TOTAL	184	0.0	1.63	14.67	25.0	22.83	5.43	29.89	0.54

Table 3. *Internet use frequency*

Country	N	Missing	Several times a day (%)	Once a day (%)	Weekly (%)	Never (%)	No information (%)
Germany	49	0	87.76	10.2	2.04	0.0	0.0
Greece	47	0	68.09	10.64	4.26	14.89	2.13
Hungary	43	0	72.09	6.98	16.28	4.65	0.0
Poland	45	0	62.22	17.78	8.89	11.11	0.0
TOTAL	184	0	72.83	11.41	7.61	7.61	0.54

Internet use frequency among urology outpatients by country. Data are shown as percentages of respondents within each category. Between-country differences were analyzed using chi-square tests for categorical variables and Kruskal–Wallis tests for ordinal or continuous variables. Significant associations (e.g., education and internet use frequency in Greece and Poland) are described in the text.

Table 4. *Social media platform use among urology outpatients by country*

Country	YouTube (%)	Facebook (%)	X (%)	Instagram (%)	TikTok (%)	None (%)
Germany	57.14	38.78	8.16	32.65	8.16	22.45
Greece	57.45	55.32	8.51	29.79	6.38	12.77
Hungary	55.81	60.47	25.58	39.53	55.81	16.28
Poland	64.44	64.44	33.33	44.44	20.0	11.11
TOTAL	58.7	54.35	18.48	36.41	21.74	15.76

Perceived usefulness of the internet for health decisions

On a 10-point scale, perceived usefulness averaged 5.12 (SD 2.49), with country-level means of 5.88 (Poland), 5.69 (Germany), 4.72 (Greece), and 4.07 (Hungary). The association between age and perceived usefulness was significant only in Poland (Kruskal–Wallis, p = 0.005); no significant age effects were observed in the other countries (Figure 1).

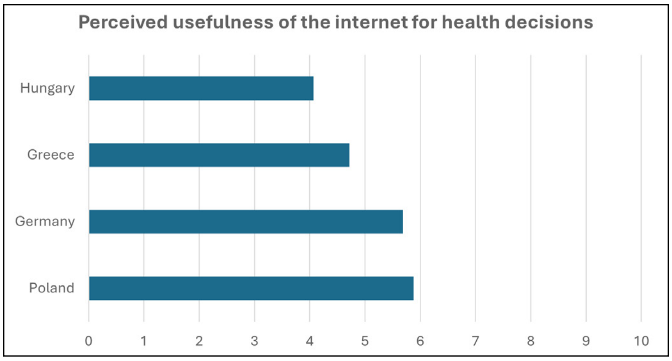

Figure 1. *Usefulness of the internet for health decisions by country.*

Ratings were given on a 10-point Likert scale, where 0 = "not useful at all" and 10 = "extremely useful." Between-country differences were analyzed using the Kruskal–Wallis test.

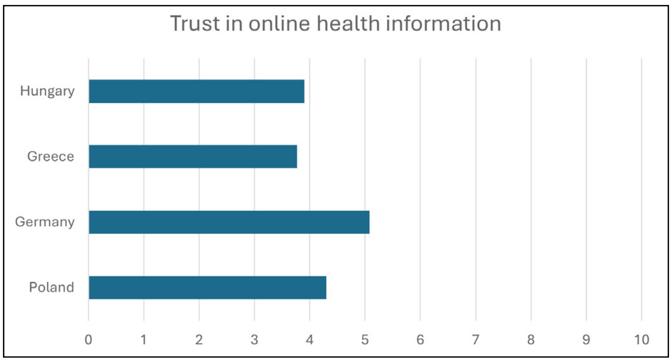

Figure 2. *Trust in online health information by country.*

Ratings were given on a 10-point Likert scale, where 0 = "no trust at all" and 10 = "complete trust." Statistical comparison used the Kruskal–Wallis test.

Trust in online health information

Trust ratings were modest (mean 4.32, SD 2.3), highest in Germany (5.08), followed by Poland (4.30), Hungary (3.90), and Greece (3.77). Education level did not correlate with trust in any country (Spearman p≥0.07, Figure 2).

Medical app usage and willingness to adopt on prescription

Current medical app use was low: 1% reported daily use, 6% weekly, 19% monthly, and 65% never. Non-use was most frequent in Germany (75%) and Hungary (79%), and lower in Greece (51%) and Poland (55%). Nevertheless, 73% reported they would use a medical app if prescribed by a physician, with country-specific intent highest in Poland (88%), followed by Hungary (81%), Germany (63%), and Greece (61%) (Figure 3).

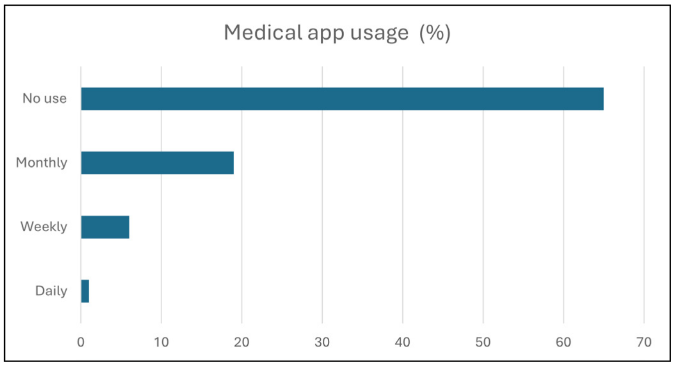

Figure 3. *Medical app usage and willingness to adopt on prescription.*

Bars indicate current app-use frequency (daily, weekly, monthly, never) and percentage of participants who reported willingness to use an app if prescribed by a physician.

Table 5. *Online health information-seeking topics among urology outpatients by country*

Country	Disease and symptoms (%)	Medication (%)	Treatment options (%)	Surgical techniques (%)	Physicians (%)	Clinics/ practices (%)	Patient forums (%)	Self-help groups (%)	Disease-specific websites (%)	I have never searched the internet for health information (%)
Germany	63.27	55.1	65.31	48.98	63.27	46.94	14.29	10.2	26.53	10.2
Greece	53.19	46.81	31.91	4.26	42.55	36.17	8.51	10.64	14.89	19.15
Hungary	41.86	39.53	27.91	2.33	53.49	4.65	16.28	16.28	0.0	13.95
Poland	44.44	42.22	13.33	4.44	77.78	37.78	8.89	0.0	35.56	6.67
TOTAL	51.09	46.2	35.33	15.76	59.24	32.07	11.96	9.24	19.57	12.5

Values represent the percentage of respondents who reported searching each category of health-related information online. Percentages are calculated per country. Between-country differences were analyzed using chi-square tests; no significant differences were observed (ns).

Health information literacy

Agreement with the statement "I know how and where to find useful health information on the internet" averaged 5.26 (SD 2.67). Country-level means were 6.37 (SD 2.79) in Germany, 5.25 (SD 1.97) in Poland, 4.90 (SD 2.68) in Greece, and 4.29 (SD 2.70) in Hungary (Figure 4).

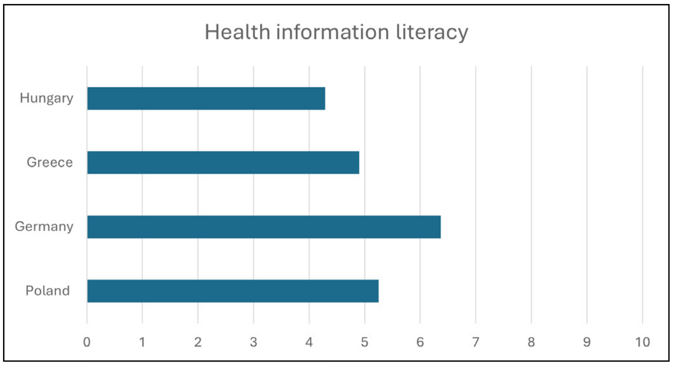

Figure 4. *Self-reported ability to find useful health information online ("health information literacy").*

Responses were rated on a 10-point scale, where 0 = "strongly disagree" and 10 = "strongly agree." Differences across countries were tested using the Kruskal–Wallis test.

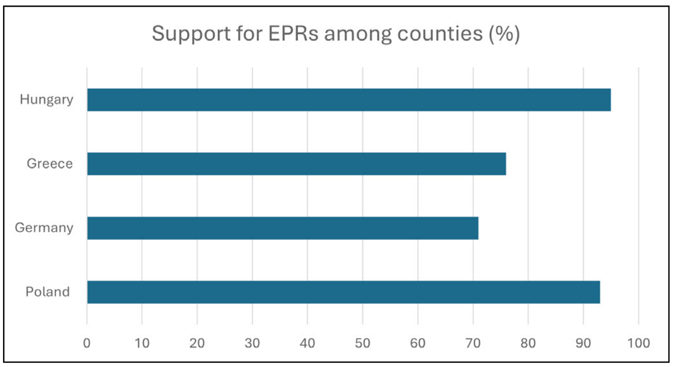

Figure 5. *Support for electronic patient records (EPRs) among urology outpatients.*

Bars show the proportion of respondents supporting nationwide EPR implementation. Percentages are presented per country.

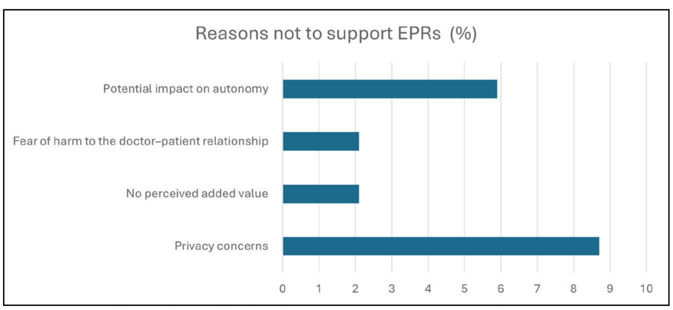

Figure 6. *Reasons not to support Electronic Patient Records.*

Percentages refer to the subgroup of respondents who did not support EPR implementation.

Attitudes toward electronic patient records

Support for EPRs was 83.7% overall. Reasons for non-support included privacy concerns (8.7%), potential impact on autonomy (5.9%), no perceived added value (2.1%), and fear of harm to the doctor–patient relationship (2.1%) (Figure 5). EPR support varied by country: Hungary 95%, Poland 93%, Greece 76%, Germany 71%. Frequency of medical app use was not associated with EPR support (χ^2, $p = 0.10$). Participants were not specifically asked about prior personal use or exposure to national EPR systems; therefore, responses reflect perceived rather than experienced attitudes toward EPR implementation.
The reasons for non-support of EPRs (Figure 6) are expressed as percentages of the subgroup not supporting EPRs ($n \approx 30$) rather than of the total sample.

DISCUSSION

This multicountry outpatient survey shows that internet engagement among urology patients is nearly universal, yet the perceived utility and trustworthiness of online information–as well as the readiness to adopt medical apps–vary substantially across countries. These findings broadly accord with reports from other medical fields that document widespread access but heterogeneous digital confidence and adoption [16, 17]. Taken together, the data suggest that access alone is no longer the binding constraint; implementation must now focus on quality, trust, and clinical integration.
Our study expands the evidence base by providing one of the first multicountry comparisons of digital health engagement specifically among urology outpatients. Previous urology-focused research has primarily centered on app development, telehealth implementation, or single-country patient cohorts rather than cross-national comparisons [2, 3, 5, 10, 21, 27, 28]. Recent studies have explored telemedicine and mobile health adoption within urology, including postoperative monitoring and cancer follow-up [2, 3, 5], yet direct comparisons across European healthcare systems have been lacking. The observed heterogeneity between countries and usefulness scores in our study mirrors trends and scores reported in other specialties such as rheumatology [13], cardiology [21] and gynecology [14], suggesting that local health-system maturity, regulatory environments, and cultural factors shape patients' digital readiness.
Most patients searched the internet for health information and engaged with popular social media plat-

forms, with YouTube emerging as the leading channel in our cohort. Video-first platforms can support patient education at scale, but content reliability is uneven [18, 19]. The modest mean trust score and only moderate perceived usefulness (≈5/10) likely reflect this mixed information ecology and the difficulty of evaluating credibility in real time. Importantly, education did not correlate with trust, implying that general educational attainment may be less salient than the provenance and presentation of information [25]. In contrast, the association between age and perceived usefulness in Poland points to context-specific factors–such as digital public services, media ecosystems, or local clinical workflows–that merit closer study.

Our observations echo literature showing high interest in technology-enabled care alongside concerns about information quality, privacy, and usability [1–7, 26]. In surgical and medical cohorts, patients often indicate willingness to use medical apps when clinician-endorsed [15, 26], a pattern we also observed. Moreover, variability in EPR acceptance between countries aligns with differences in digital maturity and user experience across European health systems [30–32].

The role of physician endorsement identified in our data represents an important novel finding. The strong association between medical recommendation and patients' willingness to use mobile health applications aligns with evidence from other domains, such as nephrology and chronic disease management, where clinician encouragement significantly increases adherence and sustained use [15, 26]. These results reinforce the clinician's role as a "digital gatekeeper" and suggest that embedding app prescription and review within routine consultations may substantially enhance adoption.

Three actionable levers emerge. First, clinician endorsement appears pivotal: framing an app or website as part of the care plan–ideally with brief in-clinic signposting or QR codes–may convert intention into use [15, 27–29]. Second, curation and quality assurance are essential. Brief, condition-specific resource lists (including high-quality videos, e.g. https://patients.uroweb.org/) can help patients bypass lower-quality social content [23–24]. Third, integration and feedback loops matter: aligning app features with clinical pathways (e.g., pre-/post-operative counseling, symptom diaries, medication reminders) and reviewing digital inputs during visits can reinforce engagement and inform shared decision-making [11, 12, 31].

We observed education-related gradients in internet use in Greece and Poland but not in Germany or Hungary, while trust showed no consistent relationship with education. This pattern suggests a shift from the classic "access gap" toward a "confidence and curation gap." Implementation should therefore be tailored: invest in basic access and skills where needed, and prioritize trustworthy signposting, privacy-by-design, and usability where access is already ubiquitous.

Despite low current app use, most patients reported willingness to adopt if prescribed–especially in Poland and Hungary. This receptivity aligns with clinician attitudes toward prescribable mHealth and highlights the clinical encounter as a critical activation point [15, 26–29]. High but heterogeneous EPR support suggests that clear communication about data governance and tangible benefits (e.g., medication accuracy, test result sharing) may accelerate acceptance [30–32]. Nevertheless, it is noteworthy that participants' assessments are based on their subjective perception of EPR implementation rather than on systematic evaluation of actual system performance.

Compared with previous reports limited to single-country or single-center settings, the present study provides comparative data highlighting how cultural and systemic contexts influence digital engagement among urology patients. It also identifies physician endorsement as a key and potentially modifiable driver of mHealth uptake, offering a practical direction for implementation strategies in urology outpatient care.

This exploratory design has several limitations. The per-country sample size (≈50 patients) restricts statistical power and limits generalizability. The sample was predominantly male (~79%), which may underrepresent female perspectives on digital health in urology. Additionally, there may be some limitations in generalization for "all" urological patients, as the digital engagement may vary between genders. The reader should be aware of differences between male and female patients when counseling about digital tools and related interventions. Moreover, each country contributed data from a single outpatient center, which may introduce local or institutional bias. All measures were self-reported and collected immediately after consultation, potentially influencing responses. Nevertheless, these constraints are offset by the consistency of observed patterns and the study's pragmatic, real-world design, which offers useful preliminary insights to inform future multicenter and longitudinal studies. The observed patterns are consistent with external data and identify pragmatic levers for improvement [21–25, 30–32].

Each country contributed data from a single outpatient urology center, which may over-represent regularly attending and more digitally engaged patients, potentially leading to slight overestimation of internet use and app willingness. However, since all sites were office-based practices with a comparable mix of benign, oncologic, and andrologic cases, selection bias is likely nondirectional for country comparisons. The small pilot (five patients per site) ensured comprehension but may have excluded individuals with lower literacy from early participation. Consequently, external validity is moderate, and the results should be interpreted as exploratory.

The exploratory design and limited per-country sample size precluded reliable multivariable modeling. Pooled multivariable regression was not conducted because the available sample size, once stratified by country, was insufficient to support stable modeling. Moreover, pooling would have obscured relevant cross-country heterogeneity and risked biased estimates.

While age, sex, and education may influence digital-health engagement, subgroup distributions were broadly similar to national outpatient demographics, and sensitivity checks did not indicate major shifts in the direction of effects. Nonetheless, we acknowledge that residual confounding cannot be excluded. These are unadjusted exploratory findings, and future multicenter studies with larger samples should apply multivariable or hierarchical models to disentangle country effects from demographic influences.

Strengths include the multicountry design, consecutive sampling in routine clinics, and coverage of multiple domains of digital engagement.

Figure captions and axes were standardized and expanded to include construct definitions, scale anchors, and sample sizes per country to improve interpretability.

While the present analyses are descriptive, several actionable strategies for clinical implementation emerge. Physician endorsement appears central to app adoption and could be evaluated through pragmatic interventions such as clinician-initiated app prescriptions, QR-linked information materials, or integration of digital tools into pre- and post-operative counseling. Future studies should prospectively assess measurable outcomes including app adherence, decision quality, and patient-reported confidence, to translate these findings into practice.

In summary, digital engagement among urology outpatients is high, but meaningful gaps persist in trust, perceived usefulness, and sustained app uptake. Addressing these gaps will likely require clinician-anchored curation, privacy-conscious design, and tighter integration of digital tools with everyday urological care.

CONCLUSIONS

Among urology outpatients in four European countries, internet engagement is widespread, but perceived usefulness, trust, and digital tool adoption are generally low and vary among countries. Physician recommendation appears pivotal for mHealth uptake, and support for EPRs is high overall. In direct response to our research question, the study demonstrates that urology patients show high levels of digital access but variable confidence and adoption across national contexts. Physician endorsement emerged as a consistent facilitator of willingness to use medical apps, underscoring its importance for clinical implementation. These findings suggest that digital health strategies in urology should be tailored to each country's digital maturity and supported by clinician-led promotion of trustworthy, user-centered tools.

Future implementation efforts should aim to convert patient interest into sustained engagement through integration of validated digital resources into daily practice and through structured clinician guidance that reinforces trust and usability

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CONFLICT OF INTERESTS

The authors declare no conflict of interest.

FUNDING

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ETHICS APPROVAL STATEMENT

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki and approved by the local ethics committee (approval number: 25-12262-BO). No personal or clinical identifiers were collected, and participation was fully voluntary.

SUPPLEMENTARY MATERIALS

Appendix

Digital Health Among Urological Patients in Four European Countries: Findings from an International Cross-Sectional Study by the European Association of Urology Outpatient Section

Dear patient,
Your opinion is very important to us. That is why we are asking for your cooperation:
We would like to find out how you as a patient use digital media for your health. Your answers will help us to improve your treatment.
This short survey will take about 2–5 minutes.
Participation is of course anonymous and voluntary.

If you have already taken part in the survey, please do not complete it again.

Thanks, and best regards,
Your study team

1. Gender: □ Male □ Female □ Non-binary
2. How old are you? (age in years)
3. How often do you use the internet?
   □ Several times a day □ Once a day □ Weekly □ Never à Continue with question 11
4. Which social media platforms do you use? (Multiple answers possible)
   □ YouTube □ Facebook □ Twitter □ Instagram □ TikTok □ None
5. What health information did you search for on the Internet?
   (Multiple answers possible)
   □ Disease and symptoms □ Medication Treatment options □ Surgical techniques
   □ Physicians □ Clinics/practices □ Patient forums □ Self-help groups
   □ Disease-specific websites □ I have never searched the internet for health information
6. How helpful is the internet for you to make a decision about your health? On a scale of 0 to 10 (0 = least important, 10 = most important).
   0 □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 □
   Not helpful at all Moderately helpful Very helpful
7. How high is your confidence in health information on the Internet? (On a scale from 0 to 10).
   0 □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 □
   No confidence Moderate confidence Very high confidence
8. How often do you use medical apps?
   □ Daily □ Weekly □ Monthly □ I don’t use any medical apps at all
9. Would you use an app if prescribed by a physician?
   □ Yes □ No

10. Please evaluate this statement:

	Does not match at all					Neutral					Fully matched
I know how and where I can find useful health information on the Internet.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐	10 ☐

11. What is your highest qualification?

☐ No school-leaving certificate ☐ University of applied sciences ☐ General secondary school
☐ Polytechnic secondary school ☐ Secondary school diploma
☐ University / higher education institution ☐ High school diploma / vocational diploma

12. Would you like your medical history to be stored on your health insurance card and accessible to the attending physicians (i.e., electronic patient record)? (Multiple answers possible).

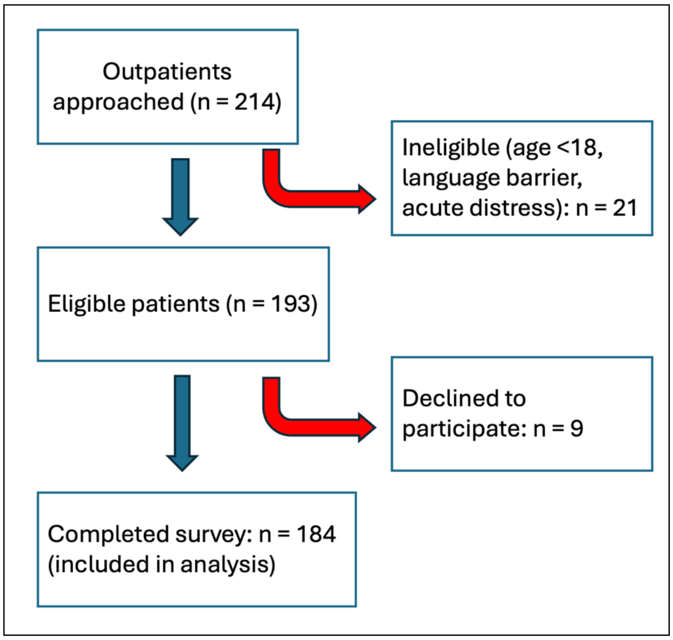
☐ Yes ☐ No, because I do not want to upload my data for data protection reasons
☐ No, because it offers no added value
☐ No, because it has a negative impact on the personal doctor-patient relationship
☐ No, because patient autonomy is then no longer taken into consideration

Suppl. Table 1. *Main indication classified by attending urologist at start of visit. Categories are mutually exclusive; if multiple indications applied, the hierarchy was oncology > andrology > benign/functional*

Country	n	Oncology [n (%)]	Andrology [n (%)]	Benign/Functional [n (%)]
Germany	49	22 (45)	12 (25)	15 (30)
Greece	47	18 (38)	14 (30)	15 (32)
Hungary	43	17 (40)	12 (28)	14 (33)
Poland	45	18 (40)	12 (27)	15 (33)
Total	184	75 (41)	50 (27)	59 (32)

Suppl. Table 2. *Mapping of CHERRIES checklist items*

CHERRIES item	Description in current study	Manuscript section
Survey design	Paper-based, multicenter, cross-sectional survey conducted in four outpatient urology clinics (Germany, Greece, Hungray, Poland)	Materials and Methods
Ethics and consent	Participation was voluntary and anymous. All patients received an information sheet; completion and return of the questionnaire implied consent	Methods: Ethics statement
Recruitment process	Consecutive outpatients were invited after routine concultations on prespecified days. No incentives were provided	Methods: Study setting and sampling
Eligibility criteria	Adults (≥ 18 years) able to complete the survey unaided in the local language; exclusion for acute distress or pror pilot participation	Methods:
Preventing multiple entries	Beacuse questionnaires were distributed and collected on-site directy after concultation, each participant could respond only once	Methods:
Handling of incomplete questionnaires	Questionnaires with ≥ 90% completion were included. Item-level missingness < 2% was handled by pairwise deletion	Statistical analysis
Response rate	184 completed of 193 eligible patients (95% completion rate)	Figure S1
Data analysis	Descriptive and comparative statistics using $\chi 2$, Kruskal-Walis, and spearman ρ tests; Holm-Bonnferroni correction for multiplicity	Statistical analysis
Data security/anonymity	No identifying information collected; all data entered into an anonymized dataset	Ethics statement
Publication reference	Checklist adapted from Eysenbach G. J Med Internet Res 2024; 6: e34	–



Suppl. Figure 1. *Flow diagram of patient recruitment and inclusion.*

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