

Original Article

**Online information seeking on disability and injury in Türkiye:
A Google trends analysis**Ayse Unal¹, Zeynep Tugce Can²¹Alanya Alaaddin Keykubat University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Antalya, Türkiye²Antalya Bilim University, Institute of Postgraduate Education, Private Law Master Program, Antalya, Türkiye

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**Abstract**

Aim: The aim of this study is to compare online information search behaviors regarding the concepts of "disability" and "injury" in Türkiye, using Google Trends data, in terms of time, geography, and content.

Materials and Methods: In this retrospective and descriptive infodemiological study, relative search volume (RSV) data of web searches conducted in Türkiye in the "Health" category between July 1, 2024, and July 1, 2025, were examined.

Results: The weekly mean RSV value for the term "injury" was found to be 58.49 ± 19.40 , and the value for the term "disability" was 8.09 ± 18.62 . Reportable search interest was detected for injury in 51 weeks and 22 provinces, and for disability in 10 weeks and 9 provinces. Relative interest in injury was found to be higher in all nine provinces where both terms could be measured. When the relevant queries were examined, it was seen that disability searches focused on basic concepts, regulations, and patient rights; while injury searches focused on clinical and legal issues such as blunt and penetrating injury and the Turkish Penal Code.

Conclusions: The results show that the online information search regarding injury is more persistent and widespread than that regarding disability; and that there is a need for understandable, reliable, up-to-date, and accessible digital health content in both areas.

Keywords: Google trends, disability, injury, Türkiye

INTRODUCTION

Injuries are a significant component of the burden of disease, resulting in temporary or permanent loss of function in addition to mortality. The Global Burden of Disease 2019 study reported that injuries from traffic accidents, interpersonal violence, and self-harm are among the leading causes of loss of healthy life years, especially in young individuals. It was also noted that the number of years spent with disability is increasing within the burden of disease [1]. Disability is not merely a diagnosis or physical impairment; it is a multidimensional condition that should be evaluated in the interaction of the individual's functional level with personal and environmental factors [2].

Issues such as the nature and severity of the injury, causality, loss of function, life-threatening condition, disability, and access to rights directly intersect clinical care with forensic evaluation. The World Health Organization also defines equal access to health information and services for individuals with disabilities as a priority area for health systems [3].

With the widespread use of digital tools in all areas today, the internet has become one of the primary sources of information for individuals to understand symptoms related to their health status, make decisions about seeking healthcare, learn about diagnostic and treatment options, and prepare for consultations with clinicians [4,5]. Analysis of data from the Household

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Information Technology Use Survey in Türkiye has shown that online information search behavior in the health field varies according to age, gender, education, region of residence, and frequency of internet use [6]. Therefore, digital search engine data is a complementary data source for investigating which health concepts the community searches for information about, when, and where. Within the infodemiology approach, Google Trends, while not directly measuring disease incidence or individual information needs, can provide an anonymous and aggregated indicator of temporal and geographical interest [7-11].

Although injury and disability are clinically and legally linked, comparing community-level information searches for these two concepts within the same time, geography, and health category settings can reveal apparent information needs, legislative and rights-based questions, and regional differences. Such a comparison can help clinicians, forensic experts, and healthcare institutions identify their priorities for understandable, reliable, and accessible digital content. The aim of this study is to compare the relative interest in the search terms “disability” and “injury” in the Google Trends Health category in Türkiye between July 1, 2024, and July 1, 2025, at the temporal and provincial levels; and to assess information needs within the scope of forensic sciences by identifying related and rising queries.

MATERIALS AND METHODS

Study Design

This study was designed as a retrospective and comparative infodemiology study examining online information search behavior related to disability and injury in Türkiye. Infodemiology is defined as an approach that examines the distribution and determinants of information produced and searched in electronic environments at the community level [7]. The use of Google Trends data in health research allows for the examination of temporal relevance, geographical differences, and information search needs, but requires the explicit reporting of search term, geography, time range, category, search type, and access date for reproducibility [8-11]. In reporting the study, the applicable provisions of the STROBE principles for observational research were considered for this type of study [12].

Data Collection

Data was obtained from the publicly available Google Trends interface and outputs exported to Excel files. Search parameters were defined as “Türkiye” for the geographic region, “Health” for the category, July 1, 2024-July 1, 2025 for the date range, and “Web Search” for the search type. The terms “Disability” and “Injury” were used as Turkish search terms instead of subject headings, and comparative interest over time, interest by sub-region, and related queries outputs were recorded [13].

Google Trends provides search volumes as relative search volume (RSV), not absolute search count. Each data point is scaled on a range of 0-100 after being compared to the total Google searches in the same location and time period; 100 may indicate

the highest relative interest in the selected comparison, 50 may indicate interest at half that level, and 0 may indicate a search volume too low to be reported, not a true absence of searches [8,13]. Therefore, RSV values were not interpreted as the number of people or the absolute number of searches. Empty cells in the regional single-term tables were not populated with zeros; provinces were considered to have no value generated by Google Trends due to insufficient search volume. In the comparative regional breakdown, the relative shares of the two terms for each province were evaluated as percentages. Related queries were examined as “top queries” showing the most frequently searched phrases along with the term examined in the same search session, and “rising queries” showing the phrases showing the greatest increase compared to the previous equivalent period [14]. In top queries, 100 represented the highest relative query interest. Rising queries were reported as a percentage increase. The entry “what is blunt injury”, which appeared twice in the raw injury file, was deduplicated and the same value was retained.

Ethical Aspects: The study used publicly available secondary data from Google Trends, anonymized, categorized, and aggregated [13]. No individual identification information, IP address, demographic characteristics, medical records, or biological material was collected; no human participants were contacted or interfered with. Therefore, the study was not a human participant study and did not require ethical committee approval or informed consent. Data were reported only at the community and provincial level; no inferences were made regarding the attribution of low-volume searches to individuals.

Statistical Analysis: Analyses were performed using the SPSS 21.0 software package. Weekly RSV values were summarized as mean $\pm$ standard deviation, median (first-third quartile), minimum-maximum, and number of weeks with values greater than zero. Regional and relevant query data were defined by frequency, percentage, rank, and RSV values; provinces left blank due to insufficient volume were excluded from regional comparisons.

RESULTS

Search interest over time

The evaluated time series covered 53 weeks of observation (Figure 1). The mean weekly RSV for the term “disability” was 8.09 ± 18.62 , while the mean for the term “injury” was 58.49 ± 19.40 (Table 1). RSV greater than zero was recorded for disability in only 10 weeks (18.9%), and for injury in 51 weeks (96.2%). The zero values here may indicate interest below Google Trends’ reporting threshold, not absolute absence of searches.

The highest week for disability search interest was November 3, 2024 (RSV = 89), followed by high weeks October 27, 2024 (RSV = 60) and April 20, 2025 (RSV = 44). Injury search interest peaked in the week of May 25, 2025 (RSV = 100); This was followed by November 10, 2024 (RSV = 95) and November 17, 2024 (RSV = 88).

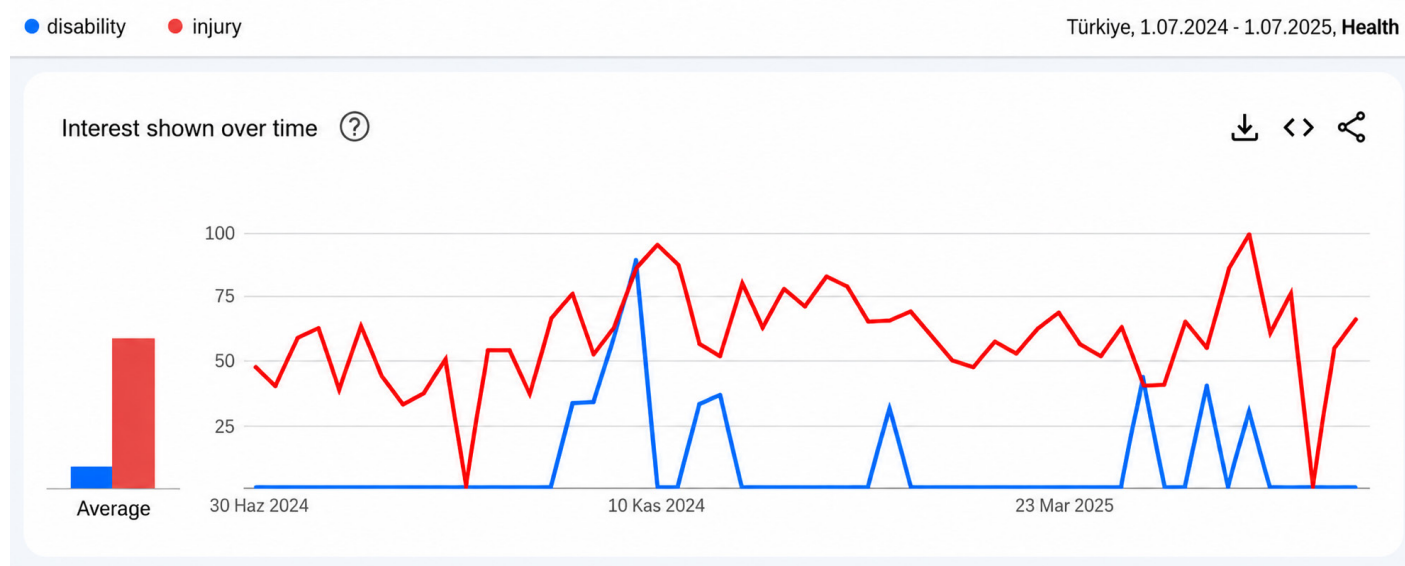


Figure 1. Interest in search terms over time

Table 1. Descriptive characteristics of weekly relative search volumes of search terms

Search term	n	Mean $\pm$ SD	Median (Q1-Q3)	Min-max	RSV > 0 weeks, n (%)
Disability	53	8.09 $\pm$ 18.62	0 (0-0)	0-89	10 (18.9)
Injury	53	58.49 $\pm$ 19.40	59 (50-68)	0-100	51 (96.2)

RSV: relative search volume, SD: standard deviation, Q1-Q3: first and third quartiles

Search interest by sub-regions

Reportable RSV at the provincial level was available in 22 provinces (27.2%) for injury and in 9 provinces (11.1%) for disability. The highest regional interest in disability searches was seen in Diyarbakır (RSV = 100), followed by Manisa (85) and Gaziantep (70). In injury searches, Aydın (RSV = 100), Erzurum (75) and Adana (59) were the top-ranked provinces (Table 2).

In the comparative regional analysis, measurable data was

available for both terms in 9 provinces, data was generated only for the injury term in 13 provinces, and there was no reportable data for either term in 59 provinces. In all nine provinces where both terms were measurable, the relative share of injury within the province was higher than that of disability. The injury rate was lowest in Diyarbakır at 52% and highest in İzmir at 83% (Table 3). The provinces with only injury data were Adana, Aydın, Denizli, Erzurum, Hatay, Kayseri, Konya, Mersin, Muğla, Sakarya, Samsun, Şanlıurfa, and Tekirdağ.

Table 2. Provinces with the highest search interest by sub-region

No	Disability – province	RSV	Injury – province	RSV
1	Diyarbakır	100	Aydın	100
2	Manisa	85	Erzurum	75
3	Gaziantep	70	Adana	59
4	Bursa	65	Şanlıurfa	55
5	Ankara	50	Mersin	53
6	Kocaeli	40	Gaziantep	51
7	Antalya	30	Denizli	51
8	İstanbul	25	Hatay	51
9	İzmir	20	Konya	51
10	—	—	Tekirdağ	50

*The outputs were normalized on a scale of 0-100.

Table 3. Comparative search rates in provinces where measurable data is available for both search terms

Province	Disability rate	Injury rate
Diyarbakır	48%	52%
Manisa	40%	60%
Bursa	38%	62%
Gaziantep	33%	67%
Ankara	30%	70%
Kocaeli	29%	71%
Antalya	23%	77%
İstanbul	23%	77%
İzmir	17%	83%

Related queries

The highest-ranking query related to disability was “what is disability” (index = 100), followed by “what is handicap” (index = 43) and “types of disability” (index = 16). The inclusion of queries such as “Regulation on Disability Assessment for Adults” (index = 8) and “what are patient rights” (6) in the list showed that the information search covered not only definitional content but also legislation and rights-based topics (Table 4).

The most frequent query related to injury was “blunt injury” (index = 100); This was followed by “what is blunt injury” (index = 54). In rising queries, after deduplication of duplicate records, a 60% increase was observed for “what is blunt injury” and a 50% increase for “what is blunt”. In particular, queries related to “Turkish Penal Code injury” and the disability assessment regulation revealed that the information needs examined included forensic-medical and legislative components.

Table 4. Most searched queries related to search terms

No	Disability-related query	Index	Injury-related query	Index
1	What is disability?	100	Blunt injury	100
2	What is a handicap?	43	What is a blunt injury?	54
3	Types of disability	16	What is blunt?	53
4	Classes of disability	12	TPC injury	40
5	Regulation on Disability Assessment for Adults	8	Penetrating injury	32
6	What are patient rights?	6	What is a penetrating injury?	18
7	—	—	Causes of injury	5
8	—	—	What does blunt mean?	5

Index = 100 indicates the most frequently searched query in the same session for the relevant term; other values show relative interest accordingly; TPC: Turkish Penal Code

DISCUSSION

The most important finding of this study is that in 49 out of 53 weeks examined in Türkiye, the relative search interest for the term “injury” was significantly higher compared to the term “disability”. Furthermore, while reportable data was obtained for the term “injury” in 51 weeks and 22 provinces, data was only available for the term “disability” in 10 weeks and 9 provinces. These findings suggest that, at the general search term level, information searches related to injury show greater temporal continuity and a wider geographical distribution compared to disability. However, considering that RSV is a normalized indicator of interest and does not reflect the absolute number of searches or the frequency of events, this result cannot be interpreted as meaning that the incidence or social burden of injury is greater than that of disability [8-11,13].

One possible explanation for the high and sustained search interest in injury is that injury can create a need for quick information about symptom interpretation, urgency, treatment, and legal consequences following a sudden event. It has been reported that online health information searches can influence individuals’ decision to seek healthcare, their preparation for the interview, and their communication with the clinician [4,5]. In this study, the prominence of queries such as “blunt injury,” “penetrating injury,” and “TPC injury” suggests that the search interest is not limited to clinical symptoms; it also encompasses a need to obtain information about the injury mechanism and legal consequences. Mehra et al., who examined concussion searches, showed that search interest can change with seasonal and popular culture events, and that the quality and readability of the online information accessed are often inadequate [15].

The low and discontinuous RSV of the term “disability” should not be interpreted as meaning that the need for information about disability is low. Within the ICF framework, disability is a multidimensional concept encompassing function, activity, participation, and environmental factors [2]. Users may use different expressions related to specific diagnoses, disability health board reports, care, social assistance, accessibility, invalidity, or rights instead of the general term “disability.” Furthermore, studies showing ongoing digital inequalities in internet access and use by individuals with disabilities indicate that search engine data may underrepresent the information needs of this group [16,17]. WHO findings on health inequalities among individuals with disabilities also support the idea that digital visibility should not be equated with actual needs and service burden [3].

The regional results showing that reportable data for injury is available in more provinces and that the injury share is higher in all nine provinces where both terms could be measured is consistent with the national temporal pattern. However, it has been shown that online health information search behavior in Türkiye varies according to age, education, gender, region of residence, and frequency of internet use [6]. Therefore, differences at the provincial level can be influenced by factors such as population, internet access, digital literacy, and search behavior, as well as the frequency of the health problem. The fact that Google Trends does not generate value for low-volume provinces also limits comparisons, particularly across 59 provinces; regional RSVs cannot be considered a reliable indicator of epidemiological prevalence.

The concentration of related queries in both terms on definitional expressions such as “what is,” “types,” and “what does it mean” suggests that users need basic conceptual knowledge. Health literacy encompasses not only access to information but also the ability to understand, evaluate, and use information in decision-making [18]. The visibility of queries focused on regulations and patient rights in disability and on the Turkish Penal Code (TPC) in injury highlights the importance of presenting clinical explanations along with legal and rights information from a forensic medicine perspective. However, since related queries do not directly indicate user intent, these findings should not be considered proof of an information gap, but rather indicators pointing to content development priorities. The strongest aspect of the study is its simultaneous comparison of two clinically and forensically related concepts within the same country, period, category, and search type settings; and its analysis of the temporal series, the distribution at the provincial level, and the related queries simultaneously. The explicit statement of data cleaning decisions, the avoidance of treating low-volume values as absolute zero, and the presentation of the paired weekly comparison along with its current values also strengthen reproducibility and interpretability. The main limitations of the study stem from the nature of Google Trends data. RSV is not an absolute search count; it does not cover

information search behaviors outside of Google users, may be affected by sampling and algorithm updates, and does not include individual characteristics such as age, gender, education, disability status, and search intent [8-11,13]. The analysis was limited to only two broad Turkish search terms and the Health category; alternative queries such as “trauma”, “accident”, “disability”, “invalidity”, specific diagnoses, and rights/report statements were excluded.

CONCLUSION

Finally, since search relevance was not compared with the number of injury cases, emergency room visits, disability health board applications, or forensic reports, no conclusions can be drawn in terms of causality and epidemiological information. In clinical and forensic practice, healthcare institutions should produce expert-supervised, simple, and up-to-date digital content for basic concepts in the context of “blunt injury”, “penetrating injury”, symptoms requiring emergency admission, things not to do in first aid, forensic documentation processes, and the TPC. In the field of disability, information on assessment regulations, health board processes, patient rights, appeal procedures, and access to services should be presented in accessible formats such as screen reader compatibility, easy-to-read language, subtitles, and sign language [3,5,15,16]. Information obtained by patients through online searches should be evaluated together and analyzed according to evidence-based clinical guidelines [5]. Google Trends assessment should be used as a complementary tool to quickly and easily identify the need for information; decisions made must be verified with emergency department, forensic case, and disability health board application data.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

The study used publicly available secondary data from Google Trends, anonymized, categorized, and aggregated. No individual identification information, IP address, demographic characteristics, medical records, or biological material was collected; no human participants were contacted or interfered with. Therefore, the study was not a human participant study and did not require ethical committee approval or informed consent. Data were reported only at the community and provincial level; no inferences were made regarding the attribution of low-volume searches to individuals.

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