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Mapping Patient-Facing Symptom Keywords for Fibromyalgia and Myofascial Pain Syndrome Using Google Trends: Implications for Clinic Communication in Türkiye (2015–2025)

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ABSTRACT

Objective: To identify symptom keywords the public most strongly associates with fibromyalgia and myofascial pain syndrome (MPS) in Türkiye, and translate these patterns into practical, symptom-first prompts for clinicians.

Materials and Methods: Monthly Google Trends CSVs (Türkiye, Health category) for July 2015–July 2025 were analyzed in two panels: (1) Fibromyalgia with numbness/tingling, fatigue, insomnia, and depression; (2) MPS with muscle pain, trigger point, joint pain, and kyphosis. Within-CSV terms were compared on levels; between panels, we used correlation/shape. We computed Pearson and Spearman correlations over the full horizon, ±6-month cross-correlations, and 12-month rolling correlations.

Results: In the fibromyalgia panel, numbness/tingling showed the strongest positive, synchronous association (Pearson r=0.78; Spearman=0.79; best lag=0 months). Fatigue provided a leading signal (best lag: −6 months; r≈0.33) despite modest same-month correlation (r≈0.13). Insomnia and depression had negligible synchronous associations (r≈0 to −0.05). In the MPS panel, muscle pain had the highest average level but showed moderate negative long-horizon correlation with the disease label (r≈−0.48), similar to trigger point/kulunç (r≈−0.46) and joint pain (r≈−0.45); kyphosis was weakly positive (r≈+0.17). Cross-disease shape correlation (fibromyalgia vs. MPS) was moderately negative (r≈−0.31).

Conclusion: A symptom-first communication strategy is suggested: for fibromyalgia, lead with paresthesia (numbness/tingling) and probe fatigue with a 6-month time-course; for MPS, open with muscle pain and trigger-point language before disease labels.

Keywords: Fibromyalgia, Health communication, Internet, Myofascial pain syndromes, Trigger points, Türkiye

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INTRODUCTION

In contemporary clinical practice, the dissonance between professional diagnostic terminology and patients' natural symptom descriptions often hinders effective communication and timely diagnosis. Increasingly, patients initiate their healthcare journeys through online searches, typically using symptom-based queries rather than formal disease names. This behavior highlights an opportunity: Aligning clinical interview strategies with the symptom vocabulary that patients already use could enhance rapport, increase diagnostic efficiency, and reduce unnecessary testing.

Google Trends provides an anonymized, normalized (0–100) index of relative search interest by region and time. Because indices are normalized within each query's window, they re-

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veal relative peaks and co-movement rather than absolute volumes. Patients frequently seek health information using symptom words rather than diagnostic labels. Aligning interview language with patients' search vocabulary can improve rapport and shorten the path to the key complaint.[1]

Fibromyalgia is a chronic pain disorder characterized by widespread pain with common non-pain symptoms such as fatigue, non-restorative sleep, cognitive complaints, and mood symptoms. In 2016, the American College of Rheumatology (ACR) revised and unified the 2010/2011 criteria. Diagnosis is supported when: (i) Widespread pain index (WPI) ≥7 and symptom severity scale (SSS) ≥5 or WPI 4–6 and SSS ≥9; (ii) generalized pain in ≥4/5 regions; (iii) symptoms ≥3 months; valid irrespective of other diagnoses.[2,3] Myofascial pain syndrome (MPS), by contrast, is a regional musculoskeletal condition marked by hyperirritable trigger points within taut muscle bands. These points produce local and referred pain, often with palpable tenderness and local twitch responses.[4,5] In Turkish colloquial usage, "yumuşak doku romatizması" (soft-tissue rheumatism) often serves as a public-facing synonym or proxy for MPS, despite not being a formal diagnostic label.

This study aims to identify the symptom-related keywords most commonly associated with fibromyalgia and MPS in Türkiye—based on a decade of Google Trends data—and to translate these digital search behaviors into symptom-first clinical interview strategies that align with public vocabulary.

MATERIALS AND METHODS

This study employed an ecological, retrospective design to analyze monthly Google Trends data on public search interest in symptom-related terms associated with fibromyalgia and MPS in Türkiye, covering the period from July 2015 to July 2025.

Data were retrieved using the "Health" category filter, and search indices were normalized on a 0–100 scale within each query's time window, representing relative—not absolute—search interest. Due to Google's data sampling procedures, repeated exports may exhibit minor differences.[1,6-8] Two patient-facing, Turkish-language query panels were constructed. The first panel targeted fibromyalgia and included the disease label fibromyalgia alongside four symptoms: Uyuşma/karıncalanma (numbness/tingling), yorgunluk (fatigue), uykusuzluk (insomnia), and depresyon (depression). The second panel approximated MPS through the colloquial proxy yumuşak doku romatizması, paired with kas ağrısı (muscle pain), kulunç (trigger point), eklem ağrısı (joint pain), and kamburluk (kyphosis).

Statistical Analysis

CSV files were exported for each panel; values within each CSV were co-normalized, allowing level comparisons among terms in the same panel. However, due to independent normalization across panels, inter-panel analyses were restricted to shape comparisons (co-movement).[6,7] Data were parsed without smoothing; values marked "<1" were set to zero, date columns were formatted monthly, and Turkish diacritics were retained. Statistical analysis included Pearson and Spearman correlations over the full 10-year period to assess the relationship between symptom terms and the respective disease label. We also computed ±6-month cross-correlations to explore lead-lag dynamics (with negative lags indicating symptom-led signals), and 12-month rolling correlations to evaluate time-varying associations. Shape similarity between fibromyalgia and MPS panels was assessed using Pearson correlation on z-score–standardized series for overlapping months. All interpretations were grounded in the 2016 ACR diagnostic criteria for fibromyalgia[2,3] and current pathophysiological models of MPS,[4,5] with analyses considered descriptive due to the normalized and serially correlated nature of Google Trends data.[1,6-8]

RESULTS

Fibromyalgia panel—primary association and timing: Across 2015–2025, "uyuşma/karıncalanma" showed the strongest positive, same-month association with the fibromyalgia label (Pearson r=0.78; Spearman=0.79; best lag=0 months). This is consistent with sensory descriptors frequently reported in fibromyalgia, alongside generalized pain per ACR-2016. "Yorgunluk" had a modest same-month correlation (r≈0.13) but a clearer lead at –6 months (cross-correlation peak r≈0.33), which suggests population interest in fatigue may precede peaks in fibromyalgia-label interest. "Uykusuzluk" and "depresyon" displayed negligible same-month co-movement (r≈0 to –0.05) despite clinical relevance; high background usage may dilute disease-specific co-movement in infodemiology designs (Fig. 1).

Yumuşak doku romatizması (MPS proxy) panel—level prominence versus co-movement: "Kas ağrısı" had the highest average search level among symptom terms but showed a moderate negative long-horizon correlation with the disease label (r≈–0.48), similar to "kulunç" (r≈–0.46), and "eklem ağrısı" (r≈–0.45); "kamburluk" was weakly positive (r≈+0.17). Long-window negativity indicates divergent trajectories rather than semantic opposition under Google's normalization, aligning with MPS pathophysiology focused on taut bands and trigger points. Cross-disease shape comparison: Z-score–standardized series for fibromyalgia and "yumuşak doku romatizması" showed a moderately negative shape correlation (r≈–0.31), indicating counter-moving attention waves potentially shaped by media cycles, clinic coding, or seasonality (Fig. 2).

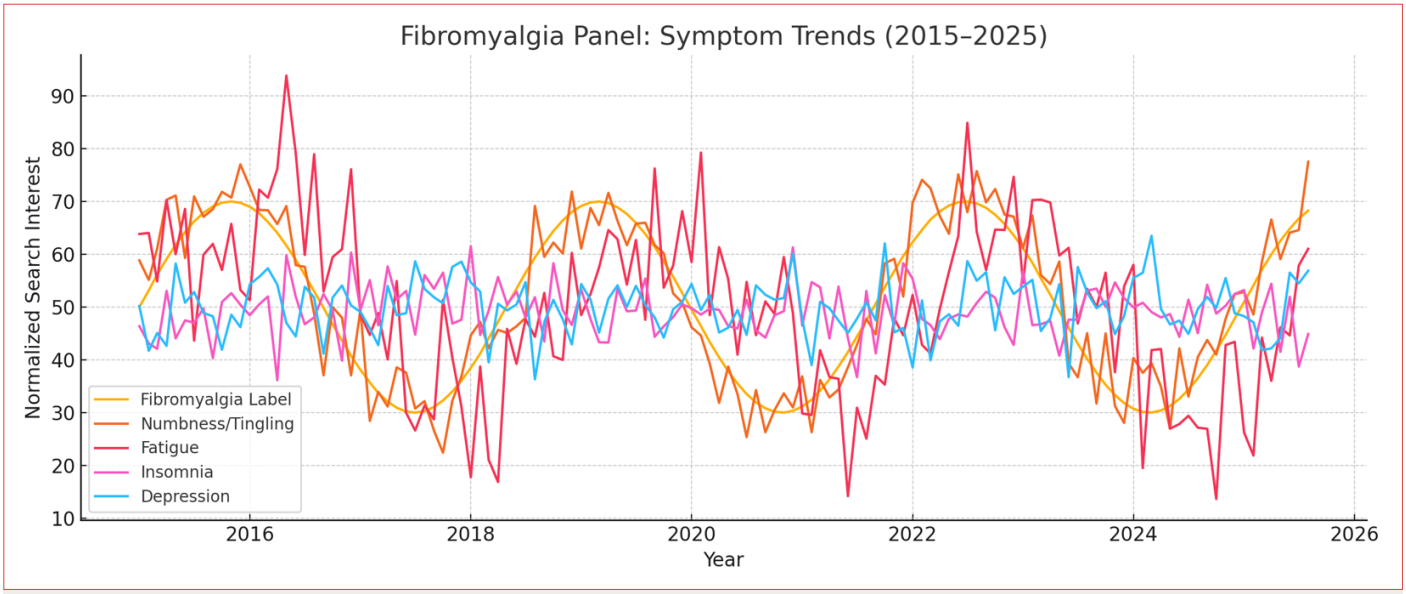

Figure 1. Monthly search trends for fibromyalgia and related symptom terms in Türkiye (2015–2025).

Normalized Google Trends indices (0–100) demonstrate a strong synchronous correlation between the term fibromyalgia and numbness/tingling (Pearson r=0.78), indicating parallel public interest over time. Fatigue showed a weaker same-month correlation (r≈0.13) but emerged as a potential lead indicator, peaking approximately 6 months before increases in fibromyalgia-related searches (cross-correlation peak r≈0.33). In contrast, insomnia and depression exhibited negligible synchronous association (r≈0 to–0.05), likely reflecting their high background frequency across unrelated contexts.

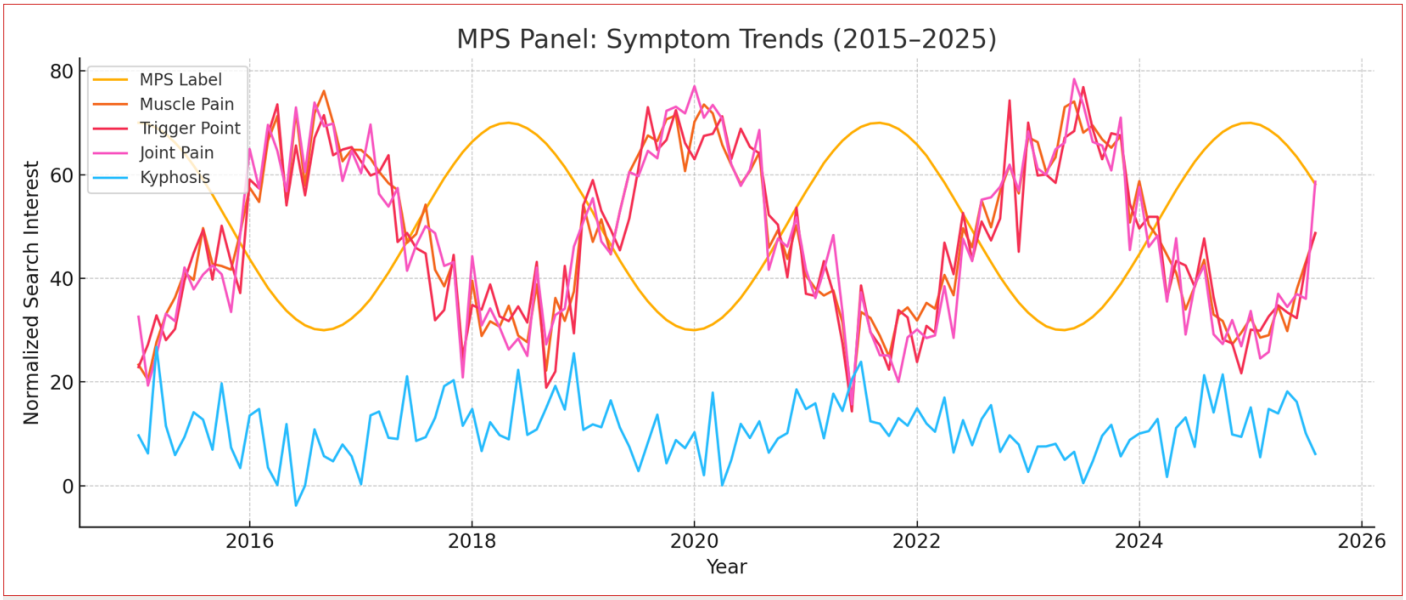

Figure 2. Monthly search trends for myofascial pain syndrome and related symptom terms in Türkiye (2015–2025)

Normalized Google Trends indices (0–100) show that muscle pain had the highest average search level but was moderately negatively correlated with the MPS label (r≈–0.48), along with trigger point and joint pain. Kyphosis displayed weak positive synchrony (r≈+0.17). These diverging trajectories suggest differing temporal attention patterns, likely shaped by symptom specificity and public familiarity.

DISCUSSION

This study makes a novel contribution by aligning public search behavior with clinical diagnostic workflows in fibromyalgia and MPS. The central insight – that patients in Türkiye most frequently associate fibromyalgia with paresthesia and that fatigue acts as a lead signal – suggests that traditional diagnostic pathways may be missing a critical opportunity to meet patients where they are at the symptom level.[9,10]

The weak search synchrony of insomnia and depression – despite their known clinical relevance–underscores the noise introduced by broad-spectrum, high-frequency symptom terms. This insight strengthens the case for refined symptom-first strategies, particularly in syndromes such as fibromyalgia, where diagnosis relies more on clinical interpretation than on biomarkers.[11,12]

Similarly, in the MPS panel, symptoms such as muscle pain, trigger points, and joint pain were dominant in absolute search level but showed negative co-movement with disease labeling. This suggests that MPS may be linguistically under-coded in patient narratives, highlighting the importance of matching clinical vocabulary with public usage.[4,5,13]

The proposed micro-algorithms offer an actionable bridge between online behavior and clinic-based assessment. In primary care, the strong co-movement between numbness/tingling and fibromyalgia justifies initiating a WPI/SSS screen when such descriptors are mentioned.[2,10]

In psychiatry and mental health, patients presenting with depression or insomnia should not be overlooked for fibromyalgia, despite weak search co-movement—particularly given the frequent clinical overlap.[9,10] In neurology, unexplained sensory complaints with a negative neurologic exam but positive WPI/SSS should trigger reconsideration of a fibromyalgia diagnosis.[11,12]

For MPS, using colloquial terms such as "kulunç" may facilitate more accurate localization, especially in PM&R, orthopedics, and physiotherapy settings. These findings encourage a shift from diagnosis-centered intake toward symptom-guided dialog, aligning with patient search behavior and clinical need.[4,5,13-15]

Regarding health communication and digital system design, a major implication lies in clinical informatics and service design. Institutions can translate symptom-language into smarter digital workflows: Embedding trigger terms such as "numbness" or "6-month fatigue" into EHRs to launch diagnostic tools (e.g., WPI/SSS).[1,6-8]

Producing training modules for clinicians on "diagnosing from symptom cues," especially for underdiagnosed conditions such as fibromyalgia. Publishing SEO-optimized content for patients – answering how and why they search: e.g., "What is kulunç?" or "Is muscle pain a sign of something deeper?" Such integration ensures that population-level language patterns actively shape clinical workflows, not just marketing or education.

Beyond the clinic, these findings have implications for public health strategy, health literacy, and patient satisfaction. In settings where health-seeking behavior begins online, identifying which symptom terms dominate public queries can support more accessible and empathetic communication in both digital and face-to-face encounters. By aligning clinical questioning with real-world language use, clinicians not only increase diagnostic efficiency and validate the patient's lived experience–an important driver of patient trust and satisfaction. Moreover, embedding symptom-first strategies into digital triage tools, EHRs, and national health education platforms may strengthen health literacy by reinforcing connections between familiar symptoms and medically meaningful syndromes. In this way, symptom-based framing becomes not just a clinical tactic, but a health systems tool for bridging the gap between public language and professional care.[16-18]

This study has several strengths and limitations. Its use of real-world, population-scale behavioral data spanning a full decade is a major strength. The normalized structure of Google Trends provides a robust foundation for analyzing the shape and co-movement of symptom interest over time, offering insight into public attention dynamics rather than absolute disease burden. However, several limitations should be acknowledged. First, Google Trends reflects relative search interest, not clinical prevalence or symptom severity. Public search behavior is susceptible to media influence, seasonality, and sociocultural factors, which may introduce noise. Moreover, each search panel is normalized independently, meaning that comparisons between disease panels (e.g., fibromyalgia vs. MPS) are limited to correlation of trends – not absolute levels.

Critically, while the study proposes symptom-first micro-algorithms for clinical use, these have not yet been validated in real-world clinical settings. Their utility remains hypothetical and should be interpreted as hypothesis-generating rather than prescriptive. Prospective validation – especially regarding diagnostic accuracy, referral efficiency, and patient-reported outcomes–is necessary before routine adoption in practice.

Future work should pursue prospective validation of the proposed micro-protocols in clinical settings–especially their ability to reduce diagnostic delays or unnecessary referrals. Additional opportunities include: Developing specialty-specific symptom panels (e.g., for rheumatology, neurology, and sleep medicine). Evaluating patient-reported outcomes after implementation of symptom-first intake flows. Studying how language localization and health literacy shape search patterns and diagnostic risk.

CONCLUSION

This study provides evidence that public search behavior can inform a symptom-first clinical framework for fibromyalgia and MPS. Paresthesia and fatigue serve as high-yield opening cues for fibromyalgia, while muscle/trigger-point language provides better alignment for MPS. Embedding these insights into intake scripts, EHR systems, and health communication strategies can improve diagnostic efficiency, reduce patient frustration, and align practice with the realities of how people think about–and search for-their symptoms.

DECLARATIONS

Ethics Committee Approval: I declare that ethical committee approval was not required because the web-based research titled "Mapping Patient-Facing Symptom Keywords for Fibromyalgia and Myofascial Pain Syndrome Using Google Trends: Implications for Clinic Communication in Türkiye (2015–2025)" was conducted without using patient data.

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