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Iranian cancer patients' social media stories: Implications for nursing strategies

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Abstract

Background: Social media platforms provide important spaces in which cancer patients narrate their illness experiences and reveal needs that often remain unexpressed in clinical settings. However, Persian-language cancer discourse has received limited scholarly attention. This study sought to identify the emotional orientations and dominant themes in Iranian cancer patients' posts on X and to determine their implications for nursing practice.

Methods: This cross-sectional infodemiology study examined posts published between September 2017 and June 2025. Among 50 screened accounts belonging to self-identified cancer patients, 24 satisfied the inclusion criteria. A Persian-language keyword lexicon yielded 2,489 posts, of which 1,617 remained following manual relevance screening. Sentiment was classified into five categories with a Persian BERT-based model (ParsBERT-DeepSentiPers), and themes were identified by Latent Dirichlet Allocation (LDA) topic modeling in Python 3.10 (Gensim, Transformers); a 12-topic model achieved the highest coherence (0.4729). Sentiment distributions were subsequently examined within each theme.

Results: Happy was the most frequently identified sentiment (31.2%), followed by Neutral (25.5%), Furious (17.3%), Angry (16.7%), and Delighted (9.4%); the overall proportion of positive sentiment (40.6%) exceeded that of negative sentiment (34.0%). Among the twelve identified themes, Treatment Process was the most prevalent (66.8%), followed by Personal Journey and Empowerment (23.7%) and Side Effects and Physical Suffering (23.2%), the only major theme in which negative posts outnumbered positive posts. Negative sentiment was concentrated in accounts of stigma, financial hardship, and experiences with the healthcare system. Metaphorical misuse of cancer language and fabricated illness claims were identified.

Conclusion: Iranian cancer patients' online narratives identify priorities for nursing practice, including symptom-management education, psychosocial screening, financial navigation, stigma reduction, and caregiver inclusion, while positioning nurses to guide patients toward credible online communities amid health misinformation.

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Highlights

What is current knowledge?

- Cancer patients worldwide use social media to narrate diagnosis, treatment, and survivorship, and sentiment and topic analyses of these posts have been shown to carry clinically meaningful signal about unmet needs.
- Qualitative research in Iran documents persistent cancer stigma, disclosure difficulty, and financial strain, but this work relies on interviews and clinic-based recruitment.
- Computational analysis of patient-generated cancer discourse has been conducted almost entirely in English; Persian-language patient narratives have not been examined at scale.

What is new here?

- This is the first computational study of Persian-language cancer patient discourse, combining account-level verification, five-class Persian BERT sentiment classification, and LDA topic modeling across 1,617 posts from 24 verified patient accounts.
- Positive expression (40.6%) exceeded that of negative sentiment (34.0%) overall; Treatment Process dominated the corpus (66.8%), while Side Effects and Physical Suffering was the only high-volume theme in which negative posts outnumbered positive ones. Anger concentrated on financial hardship, insurance, and health-system barriers rather than on the disease itself.
- The findings function as an unobtrusive needs assessment for oncology nursing, pointing to proactive symptom-management education, routine psychosocial and financial screening, caregiver burden assessment, stigma-sensitive body-image support, and nurse-guided referral to credible online communities.

Introduction

Cancer continues to be a leading cause of morbidity and mortality worldwide, with nearly 20 million new cases and 9.7 million deaths estimated for 2022 (1). Iran bears a substantial share of this burden; national population-based registry data show substantial incidence with marked geographic variation and notably high rates of stomach and bladder cancers (2). As diagnostic and therapeutic outcomes improve, an increasing number of Iranians live with cancer for years rather than months, and their needs extend well beyond tumor control. Pain, fatigue, altered body image, anxiety, financial strain, and disrupted family and working life collectively shape the illness experience, and identifying these concerns early is a core task of oncology nursing. However, much of what patients feel, fear, and manage at home is never communicated in the clinical setting.

Illness narratives provide insight into these otherwise concealed experiences. People make sense of serious disease by telling stories about it, and such stories are not merely accounts of events; they organize how patients understand themselves and how others respond to them (3,4). Cancer in particular has long attracted heavy metaphorical framing, from battle and invasion to punishment, and such metaphors demonstrably influence how patients interpret their condition and communicate about it (5,6). Attending to the stories that patients choose to tell, in their own words and on their own terms, is therefore more than a scholarly exercise; it constitutes a form of needs assessment.

Social media has created an unprecedented archive of these narratives. From early personal websites to contemporary platforms, people with cancer have written publicly about diagnosis, treatment, and survivorship (7,8), and health communication research has documented the informational and emotional benefits of this exchange (9). On Twitter specifically, self-identified cancer patients were recognized as forming a distinct online community well over a decade ago (10), and

participation can provide measurable benefits: members of a structured Twitter breast cancer community reported greater disease knowledge and reduced anxiety after joining (11). Young adults with cancer describe social media as a primary means of connecting with peers who understand their situation (12), and caregivers likewise use these platforms to share information and seek support (13). For clinicians, these spontaneous accounts complement structured instruments precisely because they are unsolicited: patients raise what matters to them, not what a questionnaire asks.

Patient-generated posts can also be investigated at scale. Infodemiology, the study of health-related information in electronic media to inform public health, offers an established framework for the analysis of such data (14). Early work applied social network analysis to map how cancer-related information and support circulate through Twitter communities (15). Sentiment analysis was subsequently used to characterize the emotional tenor of United States cancer patients' tweets (16) and of breast cancer treatment experiences and healthcare perceptions across the platform (17), and more recent "social media listening" studies have mapped the lived experience of specific cancers across European platforms (18). This body of literature remains heavily focused on English-language content; among the few exceptions, studies from Japan have characterized which cancer patients tweet and what they tweet about (10,19). Persian, spoken by well over one hundred million people, has been largely overlooked in computational studies of cancer discourse, leaving an evidence gap for the health systems that serve Persian-speaking populations.

This evidence gap is particularly consequential in the Iranian context. Illness in Iran is narrated within distinctive cultural and generational frames (20), and qualitative work documents persistent cancer stigma, rooted in fear of the disease and public misunderstanding, that shapes disclosure, help-seeking, and social relationships (21). Concurrently, online illness discourse is complicated by concerns regarding authenticity: personal suffering can be commodified for attention, and false or unverifiable health claims circulate widely (22,23). Any attempt to learn from patients' online stories must therefore balance receptiveness to patient voices with careful verification of speaker identity.

Within this context, the present cross-sectional infodemiology study examined the public X posts of verified self-identified Iranian cancer patients. Specifically, we sought to (a) determine the distribution of expressed emotions in these posts, (b) identify the dominant themes of patients' narratives and the sentiment associated with each theme, and (c) determine the implications of these patterns for oncology nursing practice, including patient education, psychosocial support, and guidance toward credible online communities.

Methods

This was a cross-sectional infodemiology study (14)-an observational, non-interventional analysis of publicly available social media content-examining Persian-language posts by Iranian cancer patients on X.

Data were obtained from publicly accessible content on X. The corpus comprised original public posts published between September 18, 2017, and June 1, 2025; data retrieval was completed in August 2025. Only original posts were included: retweets were excluded at collection, and replies were not systematically collected, so the corpus therefore consists of standalone posts authored by the account holders.

A user-centered purposive sampling strategy was employed. An initial pool of 50 candidate accounts was identified through keyword-based searches. Accounts were included if they (a) were public; (b) contained explicit, first-person self-identification as a cancer patient in the profile or post history (e.g., statements referring to the writer's own diagnosis or treatment, such as "شیمی‌درمانی من" [My chemotherapy]); and (c) contained at least 3 illness-related original posts. Accounts were excluded if they belonged to organizations, engaged in commercial or promotional activity, displayed automated posting patterns, or narrated another person's illness exclusively.

Because diagnoses cannot be clinically confirmed using social media data, patient status was assessed on the basis of longitudinal consistency: included accounts had documented a coherent personal illness trajectory over time - diagnosis, treatment cycles, side effects, and follow-up - rather than isolated illness claims. This procedure reduced, but could not eliminate, the risk of fabricated illness narratives; the residual risk is acknowledged in the study limitations.

Data collection and search lexicon

Posts were retrieved with an extensive Persian-language lexicon developed specifically for this study, covering clinical terminology (e.g., سرطان [Cancer], تومور [Tumor], شیمی‌درمانی [Chemotherapy], رادیوتراپی [Radiotherapy]) as well as colloquial and embodied expressions used by patients in everyday discourse.

All 2,489 posts underwent manual screening to determine their substantive relevance to the author's personal cancer experience. Posts were excluded when cancer-related terms were used metaphorically or idiomatically, when posts shared news or third-party content without personal narrative, or when content was promotional or otherwise unrelated. No automated method was used to detect AI-generated text; promotional and potentially inauthentic content was screened manually.

Text preprocessing

Persian-language text was normalized and tokenized with the Hazm library (24). URLs, emojis, and non-linguistic characters were removed. A custom domain-specific stopword list of 2,724 entries, developed by the research team for Persian patient discourse, was applied; single-character tokens were discarded. To identify multi-word expressions, bigram and then trigram phrase models were fitted with Gensim's Phrases. After preprocessing, the corpus contained 24,929 tokens (7,740 unique; mean 15.4 tokens per post).

Sentiment was classified with a publicly released Persian BERT model, ParsBERT (25), fine-tuned by its developers on the DeepSentiPers corpus (26) for five-class sentiment classification (Model: HooshvareLab/bert-fa-base-uncased-sentiment-deepsentipers-multi, Hugging Face). The model assigns each text one of five labels - Furious, Angry, Neutral, Happy, Delighted - with a softmax confidence score. The model was used as published, without additional fine-tuning; its developers report an F1 score of 71.11 on the DeepSentiPers multi-class benchmark (25). Each of the 1,617 posts was assigned a sentiment label and a corresponding confidence score.

Topic modeling and thematic labeling

Latent Dirichlet Allocation (27) was applied to the preprocessed corpus using Gensim (28). A dictionary was generated from the phrase-merged tokens. Candidate models with 5 to 20 topics (Step 1) were fitted (Passes = 70, chunksize = 100, alpha = "auto", eta = "auto", random seed = 42) and compared using the C_v topic coherence measure (29). Coherence peaked at 12 topics (C_v = 0.4729) and plateaued or declined thereafter; the 12-topic solution was therefore retained. Model selection was guided by coherence rather than perplexity because held-out perplexity correlates poorly with human interpretability of topics (30). The 12 topics were interpreted and labeled following a close reading of high-probability posts within each topic, yielding the twelve themes reported in the Results.

To examine the relationship between sentiment and theme, an aspect-category approach was used rather than token-level aspect extraction: the LDA-derived themes served as aspect categories. Each post was assigned its dominant topic (Highest posterior probability). The five sentiment classes were subsequently consolidated into three polarity categories (Happy and Delighted as positive; Furious and Angry as negative; Neutral as neutral), and the distribution of polarity was cross-tabulated within each theme. Importantly, this approach constitutes topic-level sentiment linkage, not fine-grained aspect-based sentiment analysis with in-sentence aspect extraction. Table 1 presents the characteristics of the study dataset of posts by Iranian cancer patients.

Table 1. Characteristics of the study dataset of posts by Iranian cancer patients on X, September 2017 - June 2025

Characteristic	Value
Included patient accounts	24
Posting period covered	September 18, 2017 - June 1, 2025
Posts initially retrieved	2,489
Posts excluded as non-relevant	872
Final analyzed posts	1,617
Posts per patient, mean (SD); median (Range)	67.4 (72.0); 50 (4-294)
Post length, words, mean (SD)	34.3 (20.6)
Post length, characters, mean (SD)	171.5 (101.9)
Tokens after preprocessing, total (Unique)	24,929 (7,740)
Custom stopword list, entries	2,724

All analyses were performed in Python 3.10 using Hazm (Text preprocessing), Transformers and PyTorch (Sentiment classification) (31), Gensim (Phrase detection and LDA), and pandas (Data management). The LDA random seed was fixed at 42.

Results

Sentiment analysis

A core component of this study was the analysis of the affective orientations expressed in the patient-authored posts through sentiment analysis. This dimension is particularly salient in understanding how individuals living with cancer publicly construct their illness experiences and engage with audiences in digital environments. Sentiment analysis was performed using a fine-tuned Persian BERT-based model ("HooshvareLab/bert-fa-base-uncased-sentiment-deepsentipers-multi"), which classified each post into one of five sentiment categories: Furious, Angry, Neutral, Happy, and Delighted. This five-category framework enabled a more nuanced representation of the emotional complexity embedded in patient narratives. The distribution of sentiment across the final dataset (N = 1,617 posts) was as follows: Happy (31.17%), Neutral (25.48%), Furious (17.25%), Angry (16.70%), and Delighted (9.40%). These findings illustrate the multifaceted emotional landscape of patients' online discourse. Notably, positive sentiments (Happy and Delighted combined, 40.57%) outweighed negative sentiments (Furious and Angry combined, 33.95%), with a substantial proportion of posts conveying neutral, informational content (Figure 1). Posts classified as Happy or Delighted frequently focused on milestones, personal resilience, and expressions of hope: “Today, after months of treatment, I finally walked outside without assistance - small victories matter.” Such narratives may foster optimism and collective encouragement within the patient community. Conversely, posts categorized as Furious or Angry reflected patients' frustration with systemic barriers, treatment side effects, and emotional exhaustion: “Another denied insurance claim - how many battles must we fight beyond cancer itself?” These expressions of discontent and anger underscore the structural inequities embedded in healthcare systems and the emotional toll they impose on patients. Neutral posts typically provided updates on treatment, shared coping strategies, or documented day-to-day experiences: “Starting a new chemotherapy cycle tomorrow - hoping for manageable side effects.” This type of discourse facilitates the circulation of experiential knowledge and fosters peer-to-peer support. From a communication perspective, the five-level sentiment profile underscores the performative and relational dimensions of illness narration in social media spaces. The findings suggest that patients not only document their experiences for personal catharsis; rather, they engage in deliberate affective labor that serves to build solidarity, advocate for systemic change, and co-construct communal narratives of survivorship. Furthermore, the emotional complexity evident in this dataset challenges reductive framings of cancer discourse as either overwhelmingly negative or artificially positive. Instead, it reflects the fluid, ambivalent, and dynamic nature of lived experience as represented in digital health communication.

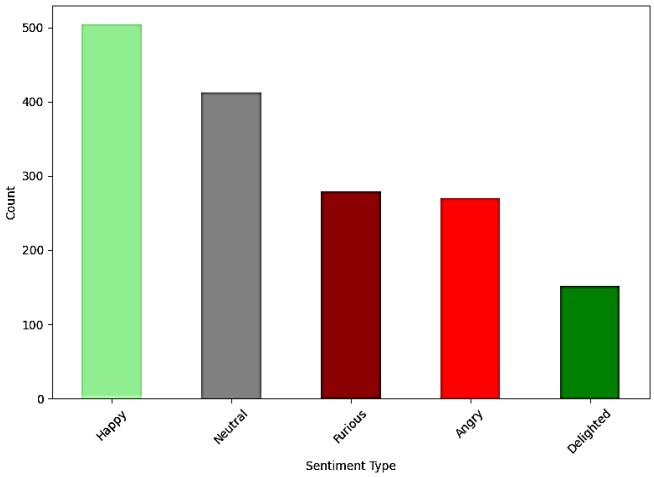

Figure 1. Distribution of the five sentiment categories (Furious, angry, neutral, happy, delighted) assigned by the ParsBERT-DeepSentiPers classifier to Iranian cancer patients' posts on X (N = 1,617; September 2017 - June 2025)

Topic modeling and thematic analysis

To uncover the latent thematic structures within the dataset, this study employed topic modeling using Latent Dirichlet Allocation (LDA). Given the inherently unstructured and heterogeneous nature of social media discourse, LDA provides a robust computational method for detecting recurring patterns of meaning across large corpora of textual data. Prior to model training, the textual data were subjected to extensive linguistic preprocessing, including normalization, lemmatization, and the removal of domain-specific stopwords. In addition, bigram and trigram phrase modeling was used to more effectively capture multi-word expressions frequently found in Persian patient discourse. As shown in Figure 2, this preprocessing ensured that the LDA model would operate on a semantically enriched and noise-reduced representation of the text. The optimal topic number was determined through an iterative coherence evaluation procedure, in which models ranging from 5 to 20 topics were compared. Coherence scores progressively improved as the number of topics increased, peaking at 12 topics with a coherence score of 0.4729. Beyond this point, coherence gains plateaued or slightly declined, suggesting that the 12-topic solution achieved the most appropriate balance between thematic granularity and conceptual interpretability.

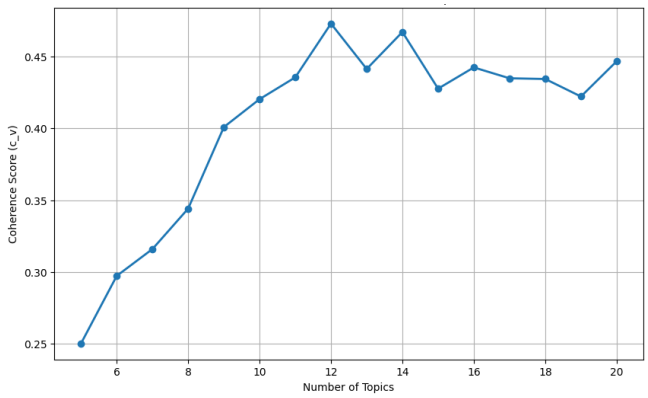

Figure 2. Topic coherence (C_v) of Latent Dirichlet Allocation models with 5 to 20 topics

Coherence peaked at 12 topics (C_v = 0.4729), which was selected as the final model.

The resulting 12-topic model revealed a diverse and multifaceted thematic structure within Persian cancer patient narratives. The topics were interpreted qualitatively and assigned thematic labels through a close reading of representative posts drawn from each topic cluster. This interpretive process was guided by the principles of thematic analysis and shaped by the research team's expertise in health communication and digital discourse studies. The emergent topics covered a broad range of experiential domains, including Personal Journey and Empowerment, Treatment Process, Side Effects and Physical Suffering, Emotional and Mental Health, Social Support and Relationships, Financial Struggles and Systemic Barriers, Healthcare System and Medical Experience, Stigma and Societal Attitudes, Post-Treatment Life and Fear of Recurrence, Role of Family and Caregivers, Coping Mechanisms and Meaning-Making, and Broader Social Commentary and Advocacy.

Collectively, these topics reflect both the intensely personal and profoundly social dimensions of the illness experience. They capture patients' embodied struggles, emotional negotiations, relational dynamics, and interactions with systemic structures. Moreover, the prominence of advocacy-related discourse highlights the active civic role that patients take on in shaping public conversations about cancer and healthcare policy. From a communication studies standpoint, these findings clarify how Persian-speaking cancer patients use social media as a space for complex meaning-making, identity construction, and participatory advocacy. The thematic architecture identified here both advances our understanding of patient discourse and provides a foundation for subsequent aspect-based sentiment analysis (ABSA), allowing a more granular investigation of how affect is distributed across the different facets of the illness experience (See Figure 3 for the co-occurrence of the twelve themes).

The ABSA results as shown in Table 2, reveal nuanced affective patterns across the identified thematic domains of cancer discourse. Treatment Process unsurprisingly registers the highest volume of

emotional expression, with 424 positive, 336 negative, and 320 neutral posts, and relatively high mean confidence scores across all categories (e.g., mean neutral confidence score: 0.841). This pattern indicates that treatment narratives fulfill both informative and emotionally cathartic functions. Likewise, Personal Journey and Empowerment and Side Effects and Physical Suffering exhibit considerable emotional polarity, with notable positive and negative expressions that remain closely balanced, underscoring the ambivalence of patients who navigate illness as both a challenge and a site of meaning-making. Relational themes such as Social Support and Relationships and the Role of Family and Caregivers sustain comparatively higher neutral and positive confidence scores (e.g., 0.816 and 0.817 Neutral Avg), pointing to a stabilizing role of social bonds in affective coping. In contrast, domains involving structural critique - Financial Struggles and Systemic Barriers and Healthcare System and Medical Experience - display significant negative expression, yet are accompanied by relatively high neutral confidence scores, perhaps reflecting patients' pragmatic engagement with systemic barriers. Notably, stigmatizing experiences (Within Stigma and Societal Attitudes) produce elevated negative intensity (0.777), while positive posts in this domain retain a moderate affective tone, highlighting the ongoing challenges of reshaping societal perceptions of cancer (Figure 4 provides more detail regarding the polarity of the corpus). Meanwhile, Broader Social Commentary and Advocacy, though less frequent, shows the highest negative intensity (0.893), suggesting that patients' activist expressions often arise from strongly felt injustices.

Treatment process

The Treatment Process was the dominant focus throughout the dataset, accounting for 66.79% of all posts (Figure 5). This predominance underscores how central medical experiences are to the lived realities of cancer patients. In these narratives, patients describe the day-to-day rhythms of chemotherapy, surgery, and radiotherapy in striking detail. Posts document not only the procedural aspects but also the logistical obstacles and physical toll involved. One recurring motif involves reflections on chemotherapy days: "Every Tuesday, I sit in the hospital chair for six hours, connected to an IV, watching my blood counts fluctuate and my hair thin." These first-hand accounts demystify medical processes for wider audiences while enabling patients to reclaim a sense of narrative agency through documentation of their experiences. Emotionally, these posts are distributed across 39.26% positive, 31.11% negative, and 29.63% neutral sentiments. Expressions of gratitude are frequent, especially toward compassionate healthcare professionals, though frustrations with systemic inefficiencies are equally voiced. For instance, a patient laments: “My appointment was delayed for the third time this month - each postponement feels like another punch to my already fragile spirit.” Simultaneously, celebratory milestones abound: “Last chemo session done! The hardest chapter is over, and I’m ready for the next.” Through these accounts, patients establish a communicative space that affirms resilience, fosters solidarity, and articulates the liminal experience of navigating between illness and recovery.

Figure 3. Co-occurrence of the twelve themes across posts (N = 1,617)
Off-diagonal cells show the number of posts assigned to both themes; diagonal cells show the total number of posts per theme. Posts could carry multiple theme labels.

Table 2. Theme-level sentiment distribution of Iranian cancer patients' posts (N = 1,617)

Topic	Positive count	Positive avg score	Negative count	Negative avg score	Neutral count	Neutral avg score
Personal Journey and Empowerment	192	0.746	121	0.723	70	0.777
Social Support and Relationships	116	0.737	88	0.726	58	0.816
Treatment Process	424	0.761	336	0.740	320	0.841
Side Effects and Physical Suffering	141	0.747	177	0.762	57	0.760
Post-Treatment Life and Fear of Recurrence	27	0.775	17	0.637	20	0.711
Coping Mechanisms and Meaning-Making	16	0.673	9	0.753	4	0.580
Emotional and Mental Health	77	0.708	72	0.738	32	0.822
Healthcare System and Medical Experience	39	0.701	29	0.750	23	0.779
Financial Struggles and Systemic Barriers	47	0.700	58	0.713	60	0.829
Role of Family and Caregivers	33	0.733	32	0.744	27	0.817
Stigma and Societal Attitudes	18	0.722	24	0.777	10	0.853
Broader Social Commentary and Advocacy	3	0.797	3	0.893	4	0.783

Values are the number of posts classified as positive, negative, and neutral within each of the twelve themes, with the mean confidence score of the sentiment classifier.

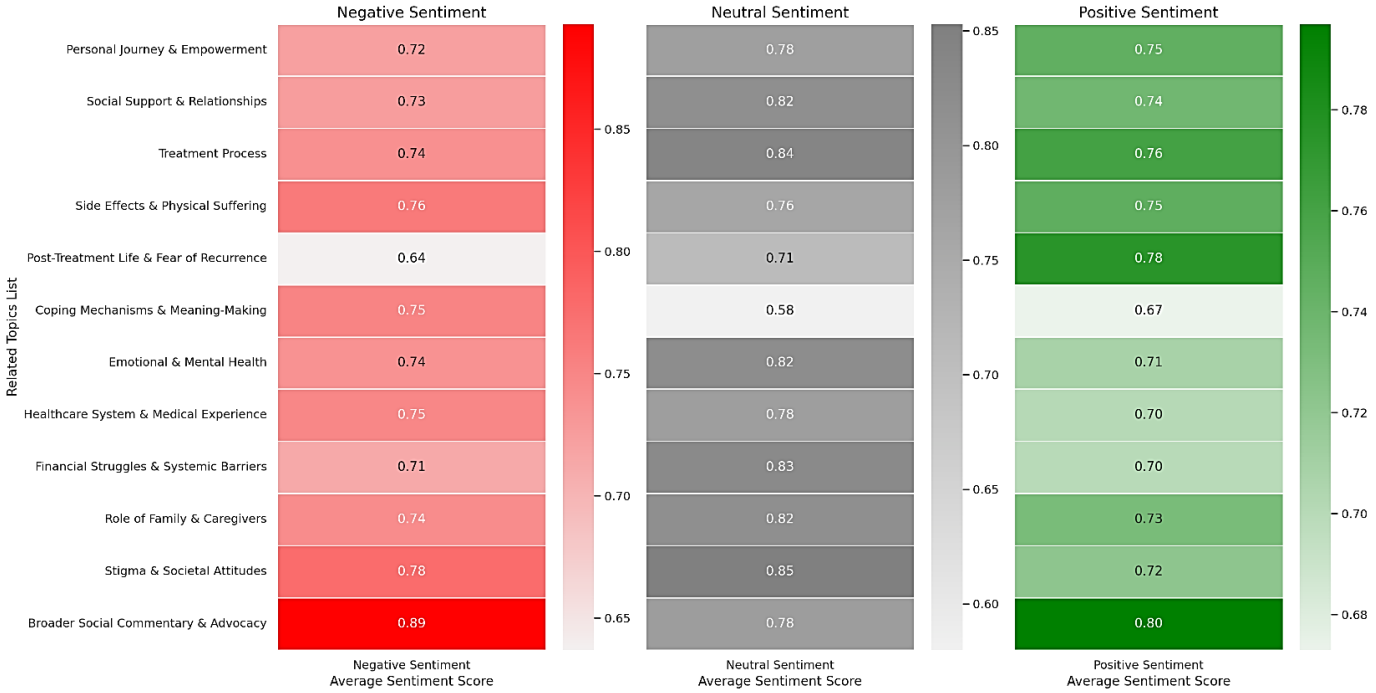

Figure 4. Mean sentiment-classifier confidence within each theme, by polarity (Negative, neutral, positive)
Values are the mean softmax confidence of the ParsBERT–DeepSentiPers model among posts of each polarity within each theme.

Personal journey and empowerment

This topic represents a profoundly human dimension within cancer discourse, reflected in 23.69% of the analyzed posts. Within this theme, patients portray their illness not simply as a clinical diagnosis but as a transformative life journey. As Figure 6 details, many describe moments in which they deliberately reframe their experience as one of personal growth and resilience. Metaphors of battle, rebirth, and triumph permeate these stories, enabling patients to assert agency over their bodies and futures. One evocative post proclaims: "I no longer see myself as a victim of cancer; I am a warrior who faced the abyss and emerged stronger." These expressions accord with broader cultural ideals of strength through adversity and show how digital spaces allow individuals to perform and reinforce an empowered identity. The sentiment distribution within this theme comprises 50.13% positive, 31.59% negative, and 18.28% neutral sentiment, illustrating the continual negotiation between hope and hardship. Posts often highlight milestones such as completing treatment cycles or regaining physical abilities. One patient reflects: “Today I walked for the first time without assistance after months of treatment - I cried not from pain but from pride.” These stories foreground the embodied struggle central to this discourse. By sharing such experiences publicly, patients reaffirm their resilience and contribute to a collective ethos of empowerment within the wider cancer community.

Figure 5. Word cloud of the most frequent Persian terms in posts assigned to the Treatment Process theme (n = 1,080 posts). Term size is proportional to frequency after preprocessing (Normalization, stopword removal, and phrase merging).

Figure 6. Word cloud of the most frequent Persian terms in posts assigned to the Personal Journey and Empowerment theme (n = 383 posts). Term size is proportional to frequency after preprocessing.

Side effects and physical suffering

The Side Effects and Physical Suffering theme foregrounds the embodied challenges faced by cancer patients, representing 23.19% of the dataset. In these posts, patients candidly describe the toll of fatigue, pain, nausea, hair loss, scarring, and altered body image. These accounts variously seek empathy, provide peer advice, and normalize distressing experiences (Figure 7). One particularly vivid reflection reads: “I stare at my reflection, barely recognizing the person in the mirror - my hair is gone, my skin pale, my body frail, yet my heart still beats with defiance.” By articulating these realities, patients challenge cultural narratives that valorize stoicism, instead embracing vulnerability as an integral aspect of the cancer experience. The sentiment distribution in this category comprises 15.2% neutral, 37.6% positive, and 47.2% negative sentiment. Informational posts are frequent, offering practical advice: “For those starting chemo: ice chips really help with mouth sores, and peppermint tea eased my nausea.” In addition to this guidance, expressions of communal empathy abound: “To everyone experiencing bone pain tonight - you’re not alone; we endure this together.” These narratives serve an affective function, fostering empathy and solidarity within a community that often faces social isolation due to the physical consequences of treatment.

Figure 7. Word cloud of the most frequent Persian terms in posts assigned to the Side Effects and Physical Suffering theme (n = 375 posts). Term size is proportional to frequency after preprocessing.

Social support and relationships

This theme represents a deeply relational dimension of the cancer experience, accounting for 16.20% of posts. In this theme, patients express considerable gratitude for the support provided by caregivers, family members, and peer networks, while also recounting moments of social withdrawal and relational strain (Figure 8 presents the word cloud for this category). The complexity of these dynamics is captured in a poignant reflection: “Cancer showed me who my true friends are - some distanced themselves, unable to handle my illness, while others became my lifeline.” Such narratives reveal the fluidity of support systems during illness, where bonds are both strengthened and tested. The sentiment profile within this category is marked by 33.59% negative, 44.27% positive, and 22.14% neutral expressions, underscoring the emotional complexity of relational experiences. Many posts convey gratitude publicly: “My sister holds my hand through every scan - her presence makes the sterile hospital room feel a little warmer.” Yet, others critique performative empathy: “Don’t tell me to stay strong if you’re unwilling to sit with me in my weakest moments.” Through these communicative acts, patients negotiate social capital while simultaneously challenging superficial expressions of care, advocating for deeper and more authentic forms of relational engagement.

Figure 8. Word cloud of the most frequent Persian terms in posts assigned to the Social Support and Relationships theme (n = 262 posts). Term size is proportional to frequency after preprocessing.

Emotional and mental health

The Emotional and Mental Health theme captures the frequently marginalized psychological impacts of cancer, comprising 11.19% of the dataset. In these posts, patients describe their experiences with anxiety, depression, the fear of recurrence, and a diminished sense of self-worth (Figure 9). Tellingly, such candid disclosures differ markedly from the prescriptive "think positive" narrative that is so frequently imposed on cancer patients. One post powerfully conveys this contrast: “Some days, it’s not the cancer that defeats me - it’s the crippling anxiety that grips me in the night.” These narratives establish a counter-discourse that validates emotional suffering as an authentic dimension of the cancer journey. Sentiment analysis reveals a distribution of 17.68% neutral, 39.78% negative, and 42.54% positive sentiments. Mental health challenges are frequently contextualized within broader systemic stressors, as in the following account: “I’m fighting not just cancer but also a system that makes me beg for mental health coverage.” Narratives of resilience also emerge: “My therapist reminded me that it’s okay to not be okay. That validation alone gave me strength.” From a communication perspective, these accounts demonstrate how patients employ storytelling both as a personal coping mechanism and as an advocacy tool for more comprehensive psychosocial support within oncology care.

Figure 9. Word cloud of the most frequent Persian terms in posts assigned to the Emotional and Mental Health theme (n = 181 posts). Term size is proportional to frequency after preprocessing.

Financial struggles and systemic barriers

Comprising a smaller portion of the dataset at 10.20%, this theme constitutes a prominent site of structural critique. It encompasses patients' accounts of exorbitant drug prices, denied insurance claims, and bureaucratic obstacles that compound the already heavy burdens of illness (Figure 10). One post conveys this feeling with particular force: "Cancer drains your body, but the healthcare system drains your soul - every denied claim feels like another battle to fight." By framing illness in this manner, such narratives draw attention to its underlying political economy and turn individual suffering into shared demands for systemic change. Sentiment in this theme breaks down into 36.36% neutral, 35.15% negative, and 28.48% positive. Frustration and exhaustion frequently characterize the discourse, yet moments of victory also break through: "After months of appeals, I finally got approval for my medication - a small victory in an unjust system." Practical, information-sharing posts are common as well, extending support among peers: "For those struggling with co-pays - check with [local NGO]; they helped cover my treatment." Taken together, these accounts cast digital platforms as essential arenas for emotional release and for grassroots efforts to challenge inequities in healthcare.

Figure 10. Word cloud of the most frequent Persian terms in posts assigned to the Financial Struggles and Systemic Barriers theme (n = 165 posts). Term size is proportional to frequency after preprocessing.

Role of family and caregivers

Family members and caregivers are central figures throughout the cancer journey - a reality captured in the Role of Family and Caregivers theme, which makes up 5.69% of posts (Figure 11). Patients emphasize both the vital support that caregivers offer and the emotional burdens

they carry. One moving post read: “My mother’s hands, worn and wrinkled, held me steady through every scan and surgery.” These reflections acknowledge the often-unseen emotional labor performed by caregivers. The sentiment profile within this category is 35.87% positive, 34.78% negative, and 29.35% neutral. Gratitude resonates in many posts: “Without my partner’s patience and strength, I couldn’t have made it through.” Patients also acknowledge the relational costs of caregiving: “I see the worry in my daughter’s eyes - cancer doesn’t just happen to the patient; it happens to the whole family.” From a communication perspective, these narratives advocate for a more inclusive approach to healthcare-one that recognizes caregivers not merely as peripheral figures but as integral participants in the care process.

Figure 11. Word cloud of the most frequent Persian terms in posts assigned to the Role of Family and Caregivers theme (n = 92 posts). Term size is proportional to frequency after preprocessing.

Healthcare system and medical experience

The Healthcare System and Medical Experience theme provides a nuanced account of how patients interact with medical institutions, comprising 5.63% of the dataset. Posts in this category include expressions of gratitude alongside critiques of institutional shortcomings. Patients recount encounters ranging from compassionate, patient-centered care to frustrating experiences with bureaucratic delays and systemic inefficiencies (Figure 12). One such reflection notes: “My oncologist listens patiently and treats me like a human, not just a case number - but the hospital administration delays my chemo approvals for weeks.” These accounts reveal the inherent tension between individualized care and broader structural barriers. Sentiment analysis reveals 42.86% positive, 31.87% negative, and 25.27% neutral expressions. Many patients celebrate medical advancements and professional dedication: “Thanks to the clinical trial I was enrolled in, I have a chance at remission.” Critical perspectives are also evident: “Each visit to the public hospital is a battle against endless paperwork and indifferent bureaucrats.” From a communication perspective, these posts exemplify how patients use narrative agency both to hold institutions accountable and to advocate for more transparent, patient-centered healthcare practices.

Figure 12. Word cloud of the most frequent Persian terms in posts assigned to the Healthcare System and Medical Experience theme (n = 91 posts). Term size is proportional to frequency after preprocessing.

Post-treatment life and fear of recurrence

The Post-Treatment Life and Fear of Recurrence theme captures the complex realities experienced by cancer survivors, comprising 3.96% of the dataset. In these narratives, patients describe the complexities of post-treatment life, where the joy of recovery is often shadowed by lingering fears of relapse (Figure 13). The experience is far from linear, as reflected in one survivor's account: “People think finishing chemo is the end of the journey - they don’t see the sleepless nights, wondering if it will come back.” These posts encourage a more nuanced understanding of survivorship, one that transcends simplistic notions of recovery as a final chapter. Sentiment analysis shows 42.19% positive, 26.56% negative, and 31.25% neutral expressions. Although celebratory moments are evident - “One year cancer-free today - each breath feels like a gift,” many patients also convey persistent anxieties: “Every headache trigger panic-is it back?” These accounts highlight the temporal complexities of post-treatment life and underscore the ongoing need for psychosocial support. From a communication perspective, they validate survivors’ experiences and enrich public discourse around the long-term dimensions of living with and beyond cancer.

Figure 13. Word cloud of the most frequent Persian terms in posts assigned to the Post-Treatment Life and Fear of Recurrence theme (n = 64 posts). Term size is proportional to frequency after preprocessing.

Stigma and societal attitudes

The Stigma and Societal Attitudes theme, comprising 3.22% of the dataset, examines the social perceptions and prejudices that cancer patients encounter. Posts in this category recount instances of isolation, insensitive comments, and body shaming often tied to visible signs of illness such as hair loss or weight changes (Figure 14). One particularly poignant post share: “People stare at my bald head like I’m contagious - they don’t see the battle I’ve fought to stay alive.” Through these accounts, patients challenge societal discomfort surrounding illness and advocate for greater empathy and understanding. The sentiment distribution comprises 34.62% positive, 46.15% negative, and 19.23% neutral expressions. Despite confronting stigma, many patients assert narratives of resilience and self-worth: “Cancer doesn’t define me - I’m still me, just with a few more scars.” Other posts explicitly challenge social ignorance: “Please don’t tell me I look better now that I’ve lost weight because of chemo.” These narratives illustrate how personal storytelling functions as a powerful tool to deconstruct harmful stereotypes and foster a more compassionate cultural understanding of illness.

Figure 14. Word cloud of the most frequent Persian terms in posts assigned to the Stigma and Societal Attitudes theme (n = 52 posts). Term size is proportional to frequency after preprocessing.

Coping mechanisms and meaning-making

The Coping Mechanisms and Meaning-Making theme, although representing only 1.79%, provides important insight into how patients navigate the emotional and existential dimensions of cancer (Figure 15). These narratives reveal the various strategies on which they draw - humor, spirituality, creative expression, and philosophical reflection-to maintain resilience. One patient sums up this spirit: "Laughter is my chemo - it's how I poison the sadness." Such posts illustrate the human capacity for meaning-making in the face of adversity. Sentiment analysis reveals 31.03% negative, 55.17% positive, and 13.79% neutral expressions, underscoring the non-linear nature of coping. Spiritual reflections are frequent: "I place my fears in God's hands and focus on today's blessings." Others find comfort in creative practices: "Painting my scars reminds me they are proof I survived." From a communication studies perspective, these narratives demonstrate how storytelling cultivates coherence amid the chaos of illness, contributing to wider cultural conversations about resilience, spirituality, and identity reconstruction in the context of cancer.

Figure 15. Word cloud of the most frequent Persian terms in posts assigned to the Coping Mechanisms and Meaning-Making theme (n = 29 posts). Term size is proportional to frequency after preprocessing.

Broader social commentary and advocacy

The Broader Social Commentary and Advocacy theme, although encompassing only 0.62% of posts, provides insight into how patients engage with larger socio-political discourses. In these narratives, personal illness experiences provide a platform for critiquing systemic injustices and advocating for policy reform (Figure 16). One patient articulates this shift pointedly: “Access to affordable treatment shouldn’t be a privilege - it’s a basic human right.” Here, illness is reframed as a lens through which broader social inequities are interrogated. Sentiment analysis reflects 30.0% positive, 30.0% negative, and 40.0% neutral expressions. Advocacy-driven posts are common: “Join me in signing this petition for better cancer care funding.” Patients simultaneously expose systemic barriers: “Denied treatment because I couldn’t pay upfront - where’s the justice in that?” From a communication perspective, these narratives demonstrate how patients transition from individual storytellers to public advocates, using digital platforms to mobilize collective action and push for systemic change. In this way, they reshape the public discourse around healthcare, positioning themselves as active agents within it.

Figure 16. Word cloud of the most frequent Persian terms in posts assigned to the Broader Social Commentary and Advocacy theme (n = 10 posts). Term size is proportional to frequency after preprocessing.

Discussion

This study set out to learn what Iranian cancer patients say publicly about their illness and the implications of their spontaneous accounts for nursing. Three broad findings stand out. First, the emotional landscape of these narratives is more positive than negative, even though they were written by people living with a life-threatening disease. Second, patients write predominantly about the concrete experience of treatment, while the only high-volume theme in which negative expression predominates concerns side effects and physical suffering; anger instead clusters around structural matters - money, insurance, and the health system. Third, alongside genuine patient voices, the wider discourse contains metaphorical misuse of cancer language, fabricated illness personas, and organized accounts exploiting illness narratives, which complicates both research and clinical use of this material.

The predominance of positive expression should not be read as evidence that these patients suffer less. It more plausibly reflects how public storytelling works. Patients who continue posting are disproportionately those well enough to do so, and public platforms reward milestone announcements - a finished course of chemotherapy, a first unassisted walk - more than private misery. Illness-narrative theory describes exactly this pull toward restitution and quest stories, in which suffering is narrated as a passage toward recovery or meaning (3,4), and the battle metaphors that saturate our corpus carry the same performative pressure to appear strong (5,6). One post in our data resists that script explicitly: a woman describes her bald head and colorless face in the mirror and writes that "it isn't always about being 'just' a fighter." The coexistence of resilient self-presentation with such moments of exhaustion is, we would argue, the central psychological texture of this corpus - and the one nurses most need to understand, because patients who sound strong online may be precisely those whose distress goes unasked-about in the clinic.

Our findings are broadly congruent with international work. The dense peer interaction we observed - patients praying for one another in chemotherapy wards, distributing votive sweets, advising newcomers - mirrors the interactive patient communities first described on Twitter over a decade ago (10) and the peer-support functions young adults with cancer report seeking there (12). The measurable benefits attributed to structured participation, greater knowledge and reduced anxiety (11), are consistent with the informational and affirming exchanges visible in our corpus. The prominence of stigma, tied to visible signs of illness and to public misunderstanding, aligns closely with qualitative accounts from Iranian stakeholders (21). And the feasibility of extracting clinically meaningful emotional signals from patients' everyday posts confirms, in a new language, what English-language sentiment studies demonstrated earlier (16,17). Two features, however, distinguish our corpus from most published analyses. Rising medicine prices, insurance inadequacy, and physicians' migration to the private sector appear far more salient here than in English-language reports, reflecting the specific economic pressures on Iranian patients. And access matters: X is officially filtered in Iran and typically reached through circumvention tools, which shapes who can speak in this arena at all - a contextual constraint with no equivalent in the settings previously studied.

To our knowledge, this is the first computational study of Persian-language cancer patient discourse and the first to combine account-level verification, five-class emotion classification, and topic modeling in this population. Its added value for nursing is a form of unobtrusive needs assessment: a map of what patients themselves choose to raise in the absence of a questionnaire.

The nursing implications are concrete, and patients' own words locate them precisely. On symptom management, patients describe nausea triggered by the smell of any food, and improvised nutritional strategies - one man, his mouth sores easing during a treatment pause, forced himself to eat kalleh-pacheh daily, a dish he had never touched, purely for the calories. Such posts argue for proactive anti-emetic counseling, early dietary referral, and nurse engagement with the self-management advice already circulating among patients, which is well-intentioned but uncurated. On communication, the smallest professional gestures carry startling weight: one-woman dresses carefully for every chemotherapy session and treasures a nurse's passing remark that she always arrives looking elegant; another patient's coping manifesto includes "make friends with the nurses - they keep a secret stash of sweets." Brief, person-directed affirmations from nurses are

remembered, retold, and woven into patients' identity work. On body image and stigma, the mirror posts quoted above, and another writer who wore her wig only to chemotherapy sessions "to lift the others' spirits," suggest that appearance-related support should permit vulnerability rather than enforce cheerful fighterhood. On psychosocial care, scan-related distress and fear of recurrence recur across the corpus - one patient awaiting imaging reframes anxiety as excitement; another describes appetite collapsing under stress - and a post crediting a psychologist's blunt "live in the moment" reframing shows patients responding well to professional psychological input when they reach it; routine distress screening and referral pathways are the systemic translation. On financial toxicity - the material and psychological burden of treatment costs - patients are unambiguous: "basic insurance is nothing but a joke," one writes; another itemizes a three-hundred-million-toman surgery in a system whose senior surgeons have left the insured sector. Oncology nurses cannot fix tariffs, but they can normalize asking about cost concerns, route patients to social work and charitable schemes, and document financial strain as a clinical problem; at the policy level, these narratives are direct evidence for insurance reform arguments. On family caregivers, one patient's tribute to the person who nursed him - "more than a month of caring for me has turned you into this exhausted, panicked body I rushed to the hospital at five in the morning" - makes the caregiver-as-second-patient phenomenon vivid; caregiver burden assessment belongs in oncology nursing practice, the more so given how heavily Iranian care work falls on families (13). Finally, on information quality, patients swim in anecdote - one post weighs a relative "cured by traditional medicine" against a mother and aunt who died after years of chemotherapy - while others act as lay educators, urging timely screening because "breast cancer caught early is treatable." Nurses are well placed to guide patients toward credible communities, to equip them to evaluate claims (23), and to recognize that some illness accounts online are performative or fabricated (22); the organized misuse we observed argues for institutional vigilance whenever clinicians or health systems engage publicly.

This study has limitations, each with specific implications for interpretation. The sample comprises a small number of public, verified accounts belonging to unusually communicative patients who accessed a filtered platform; the findings therefore describe those willing and able to narrate publicly, while the sample is likely skewed toward younger, urban, digitally literate users - themes salient for less connected patients, such as the very old or rural poor, may be underrepresented. Patient status was verified through longitudinal narrative consistency rather than clinical records, so a residual risk of fabricated narratives remains despite screening; any such contamination would most plausibly inflate performative-resilience content. The sentiment model, though state of the art for Persian, was trained on general-domain text; bittersweet or ironic posts can be misclassified - the weary mirror post discussed above, for instance, carries a positive machine label - and a five-class scheme cannot represent genuinely mixed feelings, so theme-level sentiment patterns should be read as broad tendencies rather than precise measurements. Topic modeling of short texts is sensitive to preprocessing choices, and thematic labeling, though systematic, involves interpretive judgment. The design is cross-sectional and observational: it describes expressed experiences rather than the full experience of illness and does not support causal claims.

These limitations indicate several directions for future research. Longitudinal designs could follow narrative and emotional trajectories through diagnosis, treatment, and survivorship - our own observation that some patients had narrated a family member's cancer years before their own diagnosis hints at recursive, intergenerational storylines worth dedicated study. Cross-platform research is essential in Iran, where Instagram and Telegram reach far larger audiences than X. Triangulation with interviews would test how public narration relates to privately reported needs. A Persian sentiment model fine-tuned on health-domain text would sharpen measurement. And intervention studies - for instance, nurse-moderated Persian-language online communities, evaluated for knowledge and anxiety outcomes as in English-language precedents (11) - would translate this study's descriptive map into an evaluated nursing strategy.

Conclusion

Iranian cancer patients use social media to narrate their illness in ways that are emotionally rich, socially interactive, and strikingly candid about needs that often go unspoken in clinical encounters. Their public stories reveal where care falls short and where it quietly succeeds: in symptom self-management, in the weight patients attach to small moments of professional kindness, in body image and fear of recurrence, in the exhaustion of family caregivers, and in the financial strain that shadows treatment. For oncology nursing, these narratives function as a freely given needs assessment and point to practical priorities - proactive symptom education, routine psychosocial screening, caregiver inclusion, financial navigation, and guidance toward credible online communities. Within the limits of an observational, single-platform design, this study shows that listening systematically to patients' own online voices is both feasible in Persian and directly informative for nursing practice in Iran.

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Ethical Statement

The study analyzed publicly posted content only, with no interaction with users and no collection of non-public information. Usernames and identifying details were removed from the analytical dataset; illustrative quotations presented in this article were translated into English and lightly paraphrased to prevent reverse identification through platform search. Data handling complied with the platform's terms of service regarding publicly available content.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

H.B. conceived the original idea for the study. A.A.B. and H.B. carried out the data collection and analysis. E.Sh. drafted the article, submitted it to the journal, and worked with the other two authors on its revision. All authors read and approved the final manuscript and agreed to be accountable for all aspects of the work.

Data Availability Statement

The data that support the findings of this study are available (In anonymized format) on request from the corresponding author. The data are not publicly available because of privacy or ethical restrictions.

Use of Artificial Intelligence

In preparing this manuscript, the authors used Claude to assist with language editing and improve readability. After using this tool, the authors reviewed and edited the content as needed and assumed full responsibility for the content of the publication. No artificial intelligence tool was used to generate data, analyze results, or produce scientific content, and no AI tool is listed as an author.

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