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Original Article

Lived Experiences of Long COVID in Iranian Immigrants in Canada: Implications for Post-Infection Care and Global Health Equity

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Abstract

Background: This study aimed to explore the lived experiences of Iranian immigrants in Canada with Long COVID (LC) and to examine how these experiences can inform culturally responsive healthcare approaches.

Methods: This qualitative study employed an interpretive description (ID) methodology and was conducted in Canada in 2024. Twenty adult Iranian immigrants (11 women) with physician-approved LC diagnoses were recruited from across eight Canadian provinces using purposive and snowball sampling via the Telegram application. Data collection comprised one-on-one, semi-structured, in-depth interviews conducted in Persian language through the Zoom video conferencing platform. Interviews lasted an average of 70.8 min (ranging from 51 to 96 min) and were transcribed, translated, and thematically analyzed following Thorn's ID approach, using manual thematic analysis, constant comparative analysis, and inductive reasoning. The social determinants of health (SDH) framework guided the interpretation, situating findings within broader structural and sociocultural contexts.

Results: Five major themes emerged: embodied disruptions and symptom unpredictability, systemic barriers and healthcare navigation, emotional and existential distress, economic and workplace insecurity, and cultural integration and healing pathways. Regarding healthcare needs, participants identified systemic barriers to navigating healthcare.

Conclusion: The findings underscored the need for culturally responsive, linguistically accessible, and holistic care strategies that address both health and socio-economic dimensions. Healthcare providers and policymakers could integrate cultural competence, language accessibility, mental health support, and recognition of diaspora-based coping resources into LC care to improve health outcomes for Iranian immigrant populations.

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Keywords ● Post-acute COVID-19 syndrome ● Emigration and immigration ● Qualitative research

What's Known

- Long COVID manifests as persistent, fluctuating physical, cognitive, and psychological symptoms that substantially disrupt daily functioning and quality of life.
- Emerging studies indicated that immigrants and racialized populations experience compounded Long COVID burdens due to social determinants of health, including language barriers, cultural stigma, and challenges in accessing healthcare.

What's New

- This study is among the first to qualitatively examine Long COVID specifically among immigrant populations, centering Iranian immigrants in Canada through the use of Persian-language interviews.
- Employing an interpretive description and a framework based on the social determinants of health, this study generated practice-oriented, culturally grounded insights to inform the development of equitable and responsive Long COVID care.

Introduction

As of April 13, 2024, approximately 5 million confirmed cases of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and approximately 50,000 associated deaths have been reported in Canada.[1] Long COVID (LC) refers to the

persistence or emergence of new symptoms beginning 3 months after the initial SARS-CoV-2 infection, which continue for at least 2 months without an alternative cause.[2] The syndrome is characterized by a group of physical, cognitive, and psychological manifestations, including fatigue, dyspnea, pain, "brain fog," and emotional distress,[3] which collectively compromise daily functioning and quality of life.[4] Although global prevalence estimates vary due to differences in study definitions, populations, and methodologies, emerging evidence suggested that a substantial proportion of COVID-19 survivors experience ongoing health impacts.[5]

To date, research on LC has been dominated by biomedical investigations, which often privilege clinical manifestations and pathophysiological mechanisms. However, there is increasing recognition that LC is not only a biomedical phenomenon but also a social, cultural, and economic experience.[6] These dimensions are particularly prominent for immigrants and other marginalized groups,[7] whose encounters with LC are mediated by intersecting social determinants of health (SDH), including structural inequities, linguistic and cultural barriers, and migration-related stressors.[8] Initially, immigrants often display good health upon arrival, a phenomenon known as the "healthy immigrant effect," but this advantage typically declines with longer residence in Canada.[9] Many immigrants work in frontline and essential jobs, such as nurse aides and orderlies, that make it difficult to adhere to social distancing measures or work from home, thereby increasing the risk of infection and poor health outcomes.[10] Immigrants to Canada thus benefit from the healthy immigrant effect but encounter structural, financial, and cultural barriers to healthcare access, leading to health convergence with the native-born population over time.[11]

In Canada, immigrants comprise more than one-fifth of the population, with Iranian immigrants forming a distinct community characterized by strong family networks, enduring cultural traditions, and varied degrees of socio-economic integration.[12] This context shapes not only how illness is experienced and communicated but also how healthcare is accessed, trusted, and navigated. For Iranian immigrants, the lived experience of LC may therefore reflect a complex interaction between persistent physical and cognitive symptoms, cultural health beliefs, economic pressures, and the realities of negotiating care within a system that may not fully recognize or accommodate these intersections.

Among immigrant groups in Canada, Iranians are the second largest after the Chinese, and neither English nor French serves as their first or second language in their home country, meaning these languages are not commonly spoken or used in daily life in Iran.[13] This language barrier is particularly concerning for LC, as the condition presents with a wide range of symptoms, over 200 in total, that require precise and detailed communication with healthcare workers. This complexity makes it especially challenging for non-English speakers to accurately describe their symptoms and receive appropriate care. Iranian immigrants face multifaceted challenges in accessing Canadian healthcare, with barriers such as language difficulties, cultural differences, and financial issues affecting how immigrants navigate the healthcare system.[14] To our knowledge, no qualitative studies to date have specifically examined the lived experiences of immigrant populations, including Iranian immigrants, with LC in the Canadian context. In doing so, the present study addressed a notable gap in LC research, namely, the lack of nuanced, contextually grounded accounts from immigrant communities, and provides insights that can inform more equity-oriented healthcare responses in the post-pandemic landscape. It provides insights that can inform more equity-oriented healthcare responses in the post-pandemic landscape. This study is particularly valuable for exploring the socio-economic and cultural complexities of healthcare, such as the impact of risky employment, cultural stigma regarding health weaknesses, and the loss of professional identity, which are often overlooked in current biomedical-heavy research. Specifically, it aimed to document the physical, psychological, and social challenges faced by Iranian immigrants with LC, illuminate the strategies they used to cope with and adapt to the illness, and identify practice and policy implications for culturally sensitive healthcare delivery.

Materials and Methods

Study Design and Methodological Orientation

We employed interpretive description (ID), a qualitative approach designed to understand and describe people's lived experiences in a manner that is useful for healthcare practice.[15] The ID approach was developed to address the limitations inherent in traditional qualitative methodologies. While many qualitative methodologies focus on understanding and interpreting subjective experiences and contextual meanings, ID emphasizes these aspects with a more interpretive and relational

perspective.[16] It is particularly valuable for understanding patient experiences and for informing potential improvements in the healthcare system by providing insights that can enhance clinical practices, guide health policy decisions, and enhance health education.[15] ID enables an understanding of the deeper patterns and meanings behind participants' stories, especially how these stories connect to broader issues such as culture and health systems. Moreover, we chose ID to help us make sense of complex experiences such as LC and transform them into practical ideas for improving care.

Participants and Recruitment

The study targeted first-generation Iranian immigrants in Canada with a physician-confirmed diagnosis of LC. Recruitment followed a purposive sampling strategy, supplemented by snowball sampling to broaden reach. From November 8 to December 26, 2024, the first author (MA) posted invitations every 2 weeks in three large Telegram groups for Iranians in Canada, with over 50,000 members. These posts, written in both English and Persian, outlined the details of the study and assured confidentiality. Individuals could respond privately via Telegram's "secret chat" function or by email. To participate, they needed to be 18 years of age or older, born in Iran, living in Canada as permanent residents or citizens, and diagnosed with LC following a COVID-19 infection acquired in Canada. We excluded anyone unable to do a 30–90-min interview due to health or other reasons. Those who were not eligible were sent emails thanking them for their interest.

Data Collection

The first author (MA), who speaks Persian fluently, conducted one-on-one interviews via Zoom (Zoom Video Communications, Inc., 2024, San Jose, CA, USA) in Persian between November 15 and December 26, 2024. Each interview lasted 30-90 min and was audio-recorded with permission. MA began each session by thanking the participants, introducing himself as an Iranian physician and researcher, and explaining that the aim was to hear their experiences, with no right or wrong answers. We pilot-tested the interview guide with two participants and made minor revisions to it once during the study to include new topics, such as online support groups. After each interview, MA wrote field notes to capture reflections, such as how participants' emotions shaped the conversation.

Interviews were transcribed into Persian, checked for accuracy against the recordings, and translated into English by MA. Google Translate was used sparingly, only to verify specific words rather than full sentences, to avoid losing cultural nuances.

Interview Guide

The interview guide comprised several key domains designed to explore participants' experiences with LC in depth. A semi-structured format was chosen to ensure a consistent topical focus across all 20 participants while maintaining the flexibility to explore unique individual narratives and allow participants to elaborate on the meanings they attached to their experiences.[17] Each domain was designed to elicit specific information, ranging from participants' demographic details and their experiences living with COVID-19 to their interactions with the healthcare system, suggestions for improving healthcare services, and any other insights they wished to share about their journey with LC. These domains included demographic information, life before LC, life with LC, symptoms, daily management, challenges and coping, healthcare system experience, and additional insights.

Ethical Considerations

Ethics approval was obtained from the University of Saskatchewan Behavioral Research Ethics Board (Approval ID: 5174). Prior to the interview and the recording, oral informed consent was obtained, and participants were informed of their right to withdraw without consequence and reassured that their contributions would remain confidential and anonymized using pseudonyms. Data were securely stored on a password-protected laptop and university-managed cloud storage. Data destruction was scheduled for 5 years post-publication.

Statistical Analysis

Data analysis followed Thorne's Interpretive Description (ID) methodology, employing an iterative and inductive process to generate findings directly applicable to clinical practice.[15] Following each interview, MA manually transcribed the conversation verbatim in Persian and then translated the transcripts into English, ensuring that cultural nuances and the original meaning were preserved. MA read transcripts multiple times, listened to recordings, and reviewed field notes to achieve deep data immersion. Coding was conducted manually in the Microsoft Office Word program using color-coding and structured tables to classify and

track patterns across participants. These were grouped into clusters aligned with the two core research questions: individual lived experiences (Research Question 1) and healthcare system encounters (Research Question 2). For example, data segments regarding the loss of professional identity or feeling ignored by providers were assigned codes such as “identity loss” and “feeling dismissed”.

We utilized constant comparative analysis, an inductive process involving six distinct steps: immersion, template development, data organization, condensing, comparing/contrasting, and finalization. We continually compared codes across interviews to uncover patterns, such as how the lack of consistency in symptoms created a cycle of hope and despair. Thematic development involved condensing codes and categories into integrative themes by synthesizing patterns across cases and re-evaluating earlier codes to ensure they remained grounded in participants’ own words. We stopped recruitment when we reached data saturation, defined as the point at which no further meaningful insights or codes emerged, which was confirmed around interview 18 through repeated cross-checking, and MA continued to recruit 20 participants to ensure no new code emerged. Final themes were assessed for internal consistency, distinctiveness, and conceptual fit with the research questions. To contextualize the findings, we applied an SDH framework, focusing specifically on immigration as a critical determinant. To enhance credibility, emerging interpretations and final theme structures were discussed and validated with TC and GG to ensure a coherent interpretation of the findings and to minimize potential researcher bias.

Theoretical Framework

The SDH framework informed interpretation, with particular emphasis on immigration as a critical determinant.[18] This lens contextualized participants’ LC experiences within broader structural, cultural, and socioeconomic influences on health experiences and outcomes.

Researcher Positionality and Reflexivity

The researcher (MA), an Iranian physician and academic with experience in community medicine, maintained a reflexive journal throughout the study to monitor potential bias, document decision-making, and critically assess the influence of professional identity on the research process. To ensure reflexivity, I made memos concerning participants’ comments and my own thoughts during interviews promptly after each session. Strategies included the use of neutral prompts, active listening, and avoidance of leading language. While sharing the same cultural background as participants helped build trust, it may also have led some participants to share what they thought the researcher wanted to hear or to avoid topics they felt were too sensitive. To balance this, the first author reminded participants that all perspectives were welcome, encouraged sharing about healthcare system experiences, and regularly checked interpretations with Canadian co-authors who brought outside perspectives. To address potential power imbalances due to my background as a physician and university professor, I introduced myself as a researcher, clarifying that I was not providing medical advice or treatment. Participants were assured that their responses were valuable regardless of content, and they were encouraged to express any concerns. I regularly checked in to confirm their comfort with the process.

Ensuring Rigor

Following Lincoln and Guba’s criteria,[19] four strategies were employed. First, credibility was established through member checking of transcripts, peer debriefing with TC and GG, and the integration of participant quotes. Second, transferability was supported by rich contextual description and iterative analysis to enable relevance assessment for similar populations. Third, dependability was ensured through comprehensive documentation of methodological procedures to support replicability. Fourth, confirmability was achieved through audit trails, verbatim quotations, and review by all authors, ensuring that findings were grounded in participant accounts.

Results

The findings were organized into five overarching themes and one subtheme. Some themes primarily addressed the lived experiences of Iranian immigrants with LC, while others focused on healthcare challenges and needs.

Participant Demographics

A total of 20 individuals responded to the study announcement, and one interview was conducted with each participant. All participants met eligibility requirements and completed interviews. Table 1 summarizes participant demographics. The most represented province was British Columbia (n=7), followed by Ontario (n=5), Quebec (n=2), Alberta (n=2), Saskatchewan (n=1), Manitoba (n=1),

Table 1: Individual demographic data of Iranian immigrant participants with Long COVID

Participants		Frequency n (%)	Range (mean±SD)
Sex	Female	11 (55.0)	
	Male	9 (45.0)	
Age (Years)	18-30	2 (10.0)	25-77 (45.5±14.32)
	31-40	7 (35.0)	
	41-50	7 (35.0)	
	≥51	4 (20.0)	
Duration of stay in Canada (Years)	≤5	11 (55.0)	1-46 (10.8±13.03)
	6-10	3 (15.0)	
	11-15	2 (10.0)	
	16-19	1 (5.0)	
	≥20	3 (15.0)	
Duration of suffering from LC (Months)	≤12	5 (25.0)	4-33 (21.25± 9.36)
	13-24	6 (30.0)	
	≥25	9 (45.0)	
Interview lengths (min)	50-59	6 (30.0)	51-96 69.3±14.56
	60-69	5 (25.0)	
	70-79	4 (20.0)	
	≥80	5 (25.0)	
Employment/Job type	Office/Administrative	12 (60.0)	
	Freelance/Skilled trade	4 (20.0)	
	Service/Frontline	4 (20.0)	
English comfort level	Somewhat comfortable	8 (40.0)	
	Very comfortable	7 (35.0)	
	Not comfortable at all	5 (25.0)	

New Brunswick (n=1), and Newfoundland and Labrador (n=1). Regarding employment, participants represented a diverse range of employment types, including office-based professionals (e.g., in leadership, administration, and management), skilled tradespeople (e.g., carpenters), and service-sector workers (e.g., in housekeeping and food services).

Symptom phenotype[20] analysis revealed that combinations of chronic fatigue-like (CF) syndrome, chronic pain (CP) syndrome, respiratory syndrome (RS), and neurosensorial syndrome (NS) were common, with CF+CP+RS being the most frequent pairing (30%). No participant experienced a single symptom type exclusively.

Regarding language comfort, 40% reported being "Somewhat comfortable" speaking and understanding English, 35% "Very comfortable," and 25% "Not comfortable at all." Seventy-five percent reported no underlying health conditions; diabetes mellitus type II (15%), hypertension (10%), asthma (10%), and depression (5%) were the only comorbidities reported. Participants resided in eight provinces, with the largest proportion in British Columbia (35%). Only 1 (5%) participant reported a SARS-CoV-2–related ICU admission.

Overview of Findings

There were five themes related to participants' lived experiences of LC. These included "embodied disruptions and symptom unpredictability", "economic and workplace insecurity", "emotional and existential distress" (with a subtheme on resilience, peer support, and digital communities), "cultural integration and healing pathways", and "systemic barriers and healthcare navigation". The relationship between the raw data segments, analytical codes, and the final five themes is summarized in table 2.

Theme 1: Embodied Disruptions and Symptom Unpredictability

Participants described LC symptoms as pervasive and fluctuating, disrupting daily routines, straining relationships, and challenging emotional resilience. Symptom unpredictability, across fatigue, cognitive impairment, respiratory difficulty, pain, and sensory loss, complicated both personal and social functioning. The participants described these experiences as follows:

Experience of pain was reported as: *"My joints would ache, sometimes so bad I couldn't even stand. I've never been a person to complain about pain, but when it's constant like that, it just wears you down mentally and physically."* (P10, ≥51 years old man, CF, RS, NS)

Unpredictability was described as: *"The unpredictability of my condition, never knowing*

Table 2: Data extraction of lived experiences and healthcare needs of Iranian immigrants with Long COVID living in Canada

Research Question	Semantic Units (Participant Examples)	Initial Codes	Extracted Themes
RQ1: What are the lived experiences of LC of Canadian immigrant participants from Iran?	"Every morning, waking up, was like having heavy and exhausted feelings, as if I had not slept that night."	Overwhelming fatigue; unrefreshing sleep; persistent exhaustion	Theme 1: Embodied disruptions and symptom unpredictability
	"This disease doesn't just attack the body; it hammers a person's mind, emotions, and transforms one's entire life."	Emotional breakdown; psychological impact; mental burden	Theme 3: Emotional and existential distress
	"My job, my identity as a carpenter, was all that mattered in my life. Without it, who am I? I felt lost."	Loss of professional identity; identity loss; professional helplessness	Theme 4: Economic and workplace insecurity
	"I add a lot of spices like red pepper, garlic, ginger, and tarragon… this way, I can bring back some sense of experience in my life."	Herbal remedies; traditional wisdom; cultural rituals	Theme 5: Cultural integration and healing pathways
RQ2: How can the description of healthcare needs and preferences inform healthcare services?	"One very big problem, which I have intensely experienced, is that the language has always been a huge barrier. Every time I go see the doctor, lots of times, I just can't describe how I feel."	Language barrier; miscommunication; feeling dismissed	Theme 2: Systemic barriers and healthcare navigation
	"I felt like I was piecing together a treatment plan from different sources, rather than getting a comprehensive approach from one place."	Fragmented services; lack of coordination; self-advocacy	Theme 2: Systemic barriers and healthcare navigation

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how I'll feel from one day to the next, has added a layer of stress to my life that wasn't there before. Interestingly, my sense of smell and taste fluctuate, too." (P15, 41-50 years old man, CF, RS)

Another participant reported fatigue as: *"Every morning, waking up felt heavy and exhausted, as if I had not slept that night."* (P5, ≥51 years old woman, CF, NS)

The profound nature of exhaustion was articulated as: *"Deep-to-the-bones exhaustion that no amount of rest would ever correct."* (P20, ≥51 years old man, CF, RS, CP)

The physical intensity of breathing difficulties was illustrated by one participant who noted: *"My chest felt heavy, as if something was on top of me at all times. The air even felt thick and heavy."* (P13, 18-30 years old man, CF, RS)

The daily frustration of sensory loss was captured in the following statement: *"It was so hard with this loss of taste and smell; things felt so bland now when eating or cooking, and I couldn't enjoy food."* (P11, 18-30 years old man, CF, RS, NS)

Theme 2: Systemic Barriers and Healthcare Navigation

Participants recounted fragmented care pathways, long wait times, lack of culturally sensitive communication, and inadequate mental health integration. Many described having to self-advocate and coordinate their own care, often without clear guidance. One participant described the experience as falling "through the cracks":

"*I feel like I am starting to fall through the cracks. The LC does not fit neatly into one category of illness. They are still not sure of the treatment; they are trying to understand what it really is. It is like they are not certain how to treat it. Thus, they try little bits of everything, and nothing seems to work in the long run."* (P16, 31-40 years old man, CF, RS, CP, NS)

Another participant reported confusion with the healthcare system as: *"I often feel like I'm caught in a loop where each visit to the doctor just leaves me more confused."* (P9, 31-40 years old woman, CF, CP)

Delays in accessing specialized care were another common issue, as a participant explained: *"I wasn't able to get into a specialized clinic until about 6 months into dealing with the condition."* (P20, >51-year-old man, CF, RS, CP)

One participant described fragmented services as*: "It's like I must piece together care from many different sources: my family doctor, specialists, mental health support, alternative treatments-none of which feel like they are working together."* (P17, 31-40 years old woman, CF, RS, CP)

They often struggled to restrict access as: *"Most family doctors are gatekeepers, as are specialists."* (P6, 41-50 years old woman, CF, CP, NS)

One participant highlighted the gap in targeted care, stating: *"Physical health access to specialist clinics or programs for LC was not provided."* (P14, 41-50 years old woman, CF, RS, CP)

Lack of provider empathy was identified as a significant barrier: *"The healthcare professionals I've seen have been competent, but they haven't always understood the frustration, the exhaustion, and the emotional burden that comes with having LC."* (P18, 41-50 years old woman, CF, RS, CP)

Theme 3: Emotional and Existential Distress

The psychological toll of LC was profound, often reshaping participants' sense of self, social identity, and family roles. Cultural norms and gendered expectations further shaped experiences of stigma, guilt, and invisibility. These experiences are illustrated in the following quotes:

"This experience, physically and emotionally, felt like it broke me." (P1, 41-50 years old woman, CF, RS, CP)

"You feel like you're losing yourself in a way, and your job in another, because the things that make you happy-socializing, going out, even taking a walk- become suddenly overwhelming." (P19, 31-40 years old woman, CF, RS, CP)

"I'd never been someone with psychological problems, and suddenly I just couldn't get away from a feeling of deep sadness and anxiety." (P16, 31-40 years old man, CF, RS, CP, NS)

The anxiety related to social reintegration was recounted as: *"Today the idea of entering a crowded room is daunting, partly because of my symptoms, but partly due to judgment from others for not being as dynamic as I once was."* (P15, 41-50 years old man, CF, RS)

Sub-theme 3.1: Resilience, Peer Support, and Digital Communities

Despite systemic shortcomings and psychological toll, participants demonstrated adaptive resilience, often through peer connection and digital platforms. These networks provided emotional relief, practical advice, and solidarity, though access was sometimes hindered by language or technological barriers. As one participant noted, reduced isolation in digital communities:

"Through online groups and forums where people shared similar experiences, I felt less lonely." (P4, ≥51 years old man, CF, CP)

Peer support was mentioned by another participant as: *"These communities became a source of comfort, knowing I was not some sort of aberration dealing with these frustrating barriers."* (P8, 41-50 years old man, CF, NS)

Resilience came from a conscious choice to keep moving forward: *"It really came down to a decision for me: give up and retreat into my shell, or try to make the most of what I have."* (P5, ≥51 years old woman, CF, NS)

Theme 4: Economic and Workplace Insecurity

Participants experienced sustained financial strain and employment instability, compounded by limited workplace accommodations and perceived discrimination. The resulting stress affected both health management and family dynamics.

"The greatest pain I feel is that my kids have gotten used to these unwanted changes in me, and they understand we do not have enough money to live as before." (P3, 31-40 years old woman, CF, RS)

This participant noted the lack of system support:

"It's not a system where, if you're sick or have a problem, you can easily access the services you need. Especially for those who have disabilities or limitations, they are left to their own devices." (P6, 41-50 years old woman, CF, CP, NS)

Economic burden and fear of future shortages was described as: "There are days when I simply can't do anything, and it feels like—it feels like I'm not living anymore, I'm just surviving, I afraid of future financial shortages." (P19, 31-40 years old woman, CF, RS, CP).

The forced transition to disability benefits was explained as: *"Eventually, I went on short-term disability. Later, I had to go on long-term disability because I didn't get better."* (P7, 31-40 years old woman, CF, NS)

Theme 5: Cultural Integration and Healing Pathways

Cultural traditions, family expectations, and integrative healing approaches were central to participants' coping strategies. Herbal remedies, mindfulness practices, and blending complementary medicine and biomedical treatments were common, offering both physical relief and emotional grounding. This participant was motivated by family:

"For my son, for my family, I have to keep trying." (P12, 31-40 years old woman, CF, NS)

Another participant described their pursuit of multiple treatments:

"I have tried acupuncture and herbal remedies recommended by people in these groups, especially for managing fatigue." (P17, 31-40 years old woman, CF, RS, CP)

A participant talked about how calming these practices were for his complementary medicine, saying:

"I do very light stretching exercises to warm up my body, and then breathing exercises that help me achieve deeper breaths." (P4, ≥51 years old man, CF, CP)

The use of traditional spices to reclaim a

sense of self was reported as: *"I add a lot of spices such as red pepper, garlic, ginger, and tarragon to my food. Maybe I can't understand the main flavor of the food, but this way, I can bring back some sense of experience in my life."* P5 (≥51 years old woman, CF, NS)

One participant reflected on the gradual nature of recovery, noting: *"Managing LC is not about the symptoms only; rather, it's about coping with the disease patiently and gradually."* (P4, >51-year-old man, CF, CP)

Discussion

This study employed an ID approach to explore the lived experiences of Iranian immigrants with LC in Canada, revealing how participants navigated the intertwined challenges of persistent symptoms, disrupted daily lives, and systemic barriers to care. The findings extend current understandings of LC by situating these experiences within the broader context of immigration, cultural adaptation, and health system navigation.

Participants' lived experiences revealed LC as a profoundly embodied disruption. Fatigue emerged as the most disabling and consistent symptom, mirroring existing literature that identifies it as the "core symptom" of LC.[21] Similarly, respiratory limitations, particularly dyspnea, disrupted autonomy and compounded anxiety, reflecting a prior study on the physical and emotional entanglement of LC symptoms.[22] Participants' accounts underscored that these physical disruptions cannot be disentangled from psychological sequelae, whereby distress, frustration, and fear intensified the lived burden of illness.

What distinguishes Iranian immigrants' experiences from those of other immigrant or non-immigrant populations is the unique interplay of cultural stigma around chronic conditions,[23] diaspora-specific coping mechanisms,[24] and compounded language barriers that amplify diagnostic delays and emotional isolation.[14] Iranians are marked by high vaccine hesitancy tied to cultural mistrust,[25] leading to prolonged symptoms.[26]

Persistent pain, often resistant to conventional management, aligns with evidence of heightened neurological sensitivity and inflammation in LC.[27] Participants highlighted the inadequacy of standard pain care, pointing to the importance of culturally sensitive, multidisciplinary approaches. Likewise, sensory disruptions, especially persistent loss of taste and smell, carried profound psychological consequences, leading to isolation and diminished quality of life, findings corroborated in a systematic review.[28]

Symptom unpredictability, well established as a hallmark of LC,[29] was reported with added intensity in Iranian immigrants, for whom linguistic barriers, limited social networks, and systemic inequities compounded the emotional toll. Participants frequently described being dismissed or misunderstood by healthcare professionals, and some were misdiagnosed with psychiatric conditions in the absence of definitive clinical indicators. Such experiences highlight the risk of exacerbated stigma for culturally diverse populations and underscore the need for inclusive, culturally sensitive models of care that integrate physical, psychological, and social dimensions of LC.

While these symptoms are commonly reported among individuals with LC in the general population, the Iranian immigrants in this study experienced them within the compounded context of migration, linguistic isolation, and systemic inaccessibility. The emotional toll of unpredictable symptoms appeared to be intensified by diminished social networks, cultural dissonance, and difficulty accessing appropriate care. These factors may not be as pronounced for non-immigrant populations and highlight the intersecting vulnerabilities that shaped participants' lived experiences. Thus, although the symptomatology aligns with general LC literature, the ways these symptoms are experienced and managed reflect immigrant-specific challenges.

Participants described systemic inefficiencies in the management of LC, including long wait times, fragmented services, and restricted access to specialized care. These barriers mirror international findings that health systems frequently fail to meet the demand for LC-specific services.[30-32] For Iranian immigrants, such barriers were compounded by linguistic and cultural differences, making healthcare navigation even more complex. An existing review highlighted organizational health literacy inequities and administrative fragmentation that disproportionately affect historically underserved racial and ethnic groups, contributing to diagnostic delays and treatment gaps.[33] Participants frequently mentioned missed referrals and delays that undermined continuity of care, reinforcing evidence that timely and coordinated specialist access is crucial for managing LC. Their lived experiences emphasized that healthcare systems must move beyond biomedical treatment to address systemic shortcomings through integrated and equitable pathways.

The findings also revealed how cultural

and linguistic barriers intensified participants' feelings of exclusion. The literature consistently showed that culturally competent care, including professional interpretation services and provider training, could improve access, trust, and outcomes for diverse populations.[34, 35] Weak interprofessional collaboration among providers perpetuated cycles of disjointed care, echoing evidence that structured teamwork enhances continuity and outcomes for patients with complex conditions. For immigrant participants, these systemic and cultural barriers demanded continuous self-advocacy. Such findings suggested the need for culturally responsive, interdisciplinary models of care that integrate mental and physical health services and actively reduce inequities in system navigation for immigrant populations.

While systemic barriers such as long wait times, lack of integrated care, and diagnostic uncertainty are common challenges for many LC patients, the Iranian immigrant participants in this study faced additional burdens tied directly to their migration context. Language barriers, lack of cultural alignment with providers, and limited awareness of how to navigate the Canadian health system intensified their struggle to access timely and appropriate care. These added layers of difficulty transformed already fragmented services into emotionally distressing and isolating experiences, requiring participants to advocate for themselves in ways that were often exhausting and unfamiliar. Unlike non-immigrant populations who may face similar barriers, immigrant patients carry the extra burden of systemic inaccessibility rooted in cultural and linguistic exclusion, which further compounds the challenges of chronic illness management.

Participants' lived experiences reveal that the emotional and existential burden of LC extends far beyond physical symptoms, encompassing psychological distress, disrupted identities, and cultural stigma. Uncertainty regarding prognosis and lack of medical clarity, and the erosion of social roles contributed to anxiety, depression, and existential unease, consistent with evidence documenting the psychological sequelae of LC, including depression, anxiety, and sleep disorders.[36] For Iranian immigrants, the experience of disruption was intensified by cultural norms that tie self-worth to productivity and caregiving roles, amplifying distress when these roles could not be fulfilled. Sex compounded these pressures: women participants described dismissal of symptoms by healthcare providers and the dual burden of caregiving while managing their own health, reflecting broader literature on sex disparities in healthcare recognition and the psychosocial vulnerabilities of immigrant women.[37]

Cultural stigma further constrained participants' willingness to seek mental health support. In Iranian contexts, mental illness is frequently associated with weakness and shame,[38] leading some individuals to conceal their struggles to preserve family harmony or avoid judgment.[39] Such stigma not only deepened isolation but also perpetuated underutilization of available services, reinforcing existing disparities in access to culturally competent care. The interplay of immigrant status, sex, and cultural expectations created a layered form of suffering, where the existential disruption of LC was compounded by diminished social capital, transnational caregiving responsibilities, and reduced belonging in the host country. These findings emphasized prior research on chronic conditions and stigma[38] while adding the culturally specific experiences of Iranian immigrants, highlighting the need for integrated, culturally sensitive mental health support that acknowledges both the universal psychological toll of LC and the distinct challenges faced by immigrant populations.

While emotional and existential distress are common experiences among individuals with LC, the immigrant status of participants in this study introduced distinct and compounding pressures. For many, feelings of isolation were intensified by a lack of extended family or community support networks in Canada, which are often present in their home country. Cultural expectations, such as the stigma surrounding illness or the norm of remaining silent about health struggles, further restricted emotional expression and help-seeking. The psychological toll of LC was often experienced alongside a sense of cultural dislocation, reduced social capital, and a diminished sense of belonging. Moreover, many participants carried a heavy burden of expectation as economic and emotional anchors for their families, both in Canada and transnationally. These immigrant-specific stressors complicated recovery, creating a layered emotional terrain not fully shared by non-immigrant populations.

Despite the debilitating physical and emotional effects of LC, participants emphasized resilience as a critical resource in navigating uncertainty and loss. Consistent with the literature, resilience was described as a dynamic process of drawing on personal, cultural, and social resources to sustain well-being in the face of chronic illness.[40, 41] Small daily accomplishments and reinforcement from family and peers were

perceived as "wins" that bolstered emotional endurance, mirroring findings that resilience enables individuals to adapt to illness trajectories and improve health outcomes.[42] Peer support emerged as particularly valuable, reducing isolation and providing both emotional comfort and practical strategies, in line with evidence that peer-based interventions enhance self-management skills and mental health in chronic conditions.[43] Importantly, resilience in this study was not only individual but relational, embedded in cultural traditions and sustained by community and family connections. The importance of culture and community connection highlighted the necessity of integrating resilience-building strategies into LC care to promote adaptability and optimism despite ongoing health challenges.

Social and online networks further amplified participants' ability to cope, functioning as spaces for emotional relief, knowledge-sharing, and collective advocacy. Online platforms provided participants with belonging and validation, reflecting broader research on the psychological and social benefits of digital peer support for chronic illness populations.[43, 44] Participants found these online groups helpful for feeling stronger together and even speaking up about health issues. At the same time, they worried that some inaccurate information shared there could lead people to delay proper care. For some participants, it was also hard to join online groups because of language, technology struggles, or cultural differences. These findings aligned with reviews identifying digital literacy[45] and linguistic inclusion[46] as key determinants of equitable health access. Together, the results underscored the dual role of online peer support as a source of resilience and advocacy, while reinforcing the urgent need for culturally sensitive digital health interventions and professional engagement to ensure safe, inclusive, and accurate support for LC patients.

Among Iranian immigrant participants, factors such as linguistic nuances, differing levels of health literacy, and culturally influenced understandings of illness could potentially increase vulnerability to miscommunication or misapplication of peer-shared advice in digital spaces.

Participants' accounts revealed the profound economic and workplace challenges imposed by LC, which disrupted financial stability, eroded career trajectories, and exposed gaps in systemic support. The inability to sustain full employment, increased healthcare costs, and insufficient institutional assistance left many participants facing acute financial insecurity, reflecting broader evidence that chronic illness and LC significantly reduce earning capacity and increase the risk of hardship. Immigrant participants were particularly vulnerable, as employment in precarious, low-wage jobs often excluded them from benefits such as paid sick leave or disability support. Studies indicated that nearly half of LC patients reduce work hours or leave employment altogether,[47] while up to two-thirds encounter workplace discrimination,[48] reinforcing calls to recognize LC as a disability and to classify COVID-19 as an occupational disease to secure workplace accommodations and compensation.[49] These findings underscored wider studies documenting that immigrants face systemic barriers, such as limited awareness of resources,[50] language challenges, and a lack of culturally sensitive social support, that exacerbate financial precarity and hinder access to aid.[51, 52] Integrating financial counseling and flexible workplace policies,[53] along with coordinated healthcare social service interventions,[54] has been recommended to mitigate the enduring economic vulnerabilities associated with LC.

We have articulated that for these Iranian immigrants, economic insecurity is intensified by precarious employment, which often lacks the benefits of paid leave, and is further exacerbated by systemic barriers such as limited awareness of Canadian resources and linguistic exclusion.

Participants' accounts highlighted cultural integration and healing pathways as central to coping with LC, with traditional practices providing both symptom relief and emotional reassurance. Consistent with broader evidence, many turned to herbal remedies and complementary approaches that were culturally familiar[55] and perceived as safe.[56] The efficacy and safety of some medicines remain underexplored, warranting rigorous evaluation.[57] While caregiving values motivated self-care, they also created tensions when participants prioritized others' needs over their own, reflecting findings that family dynamics can both support and complicate chronic illness management.[58] Traditional practices reinforced identity and resilience, resonating with research on cultural traditions as protective factors in chronic conditions,[59] and participants often combined them with biomedical treatments, aligning with evidence that integrative approaches enhance adherence and trust in diverse populations.[60] However, participants reported skepticism from healthcare providers regarding such practices, which hindered open dialogue. This finding reinforced the need for culturally responsive care that acknowledges and respects complementary medicine. The Literature suggested that bridging biomedical and cultural practices through respectful engagement with patients' cultural meanings can foster collaboration

and improve outcomes for immigrant populations managing LC.[61-63]

For Iranian immigrants, healing involves a vital synthesis of traditional herbal remedies and biomedical care to reclaim normalcy and cultural identity. These practices provide essential emotional comfort and resilience amidst systemic gaps. However, cultural expectations and family-centered roles create a tension between self-care and caregiving duties. Culturally responsive care is necessary to bridge the divide between participants' traditional beliefs and providers' skepticism, ensuring a holistic, collaborative approach to management.

This study had limitations that should be considered when interpreting the findings. First, recruitment through Telegram groups might have introduced selection bias by primarily including individuals with digital access. Second, while interviews were conducted in Persian and rigorously translated, some cultural nuances might have been lost. Third, the sample size, while appropriate for qualitative research, restricted the transferability to the wider Iranian immigrant population or other immigrant groups with LC.

Conclusion

This study demonstrated that LC was more than a medical issue for Iranian immigrants in Canada. It is a deeply personal struggle shaped by their culture, financial worries, and challenges navigating healthcare. Participants faced unpredictable symptoms, emotional pain, and system barriers, yet they also demonstrated strength through family ties, cultural practices, and online support. Online communities can be a powerful resource, but they need guidance to provide safe and accurate information. Participants' experiences suggested that healthcare and social systems could increase cultural responsiveness and mental health and social support. Paying attention to culture, family, and community support can render healthcare more effective for individuals facing LC. Health equity requires moving beyond a "one-size-fits-all" approach to recognize that, for diaspora populations, the path to healing is as much cultural and economic as it is medical.

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Authors' Contribution

M.A: Conceptualization, study design, participant recruitment, data collection, data analysis, drafting and critical revision; T.C: Conceptualization, study design, data interpretation, and reviewing the manuscript; G.G: Conceptualization, study design, data interpretation, and reviewing the manuscript; All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Declaration of AI

In preparing this manuscript, MA utilized ChatGPT 4.0 to enhance the clarity and linguistic flow of the text. Every suggestion was carefully reviewed and refined by the authors to ensure scientific accuracy. We remain fully responsible for the integrity and final content of this work.

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