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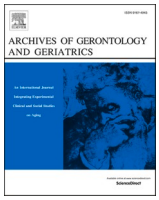

Review

Prevalence, perceptions, and experiences of frailty among older migrants from Low- and Middle-Income Countries to High Income Countries: A mixed method systematic review

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HIGHLIGHTS

- Older migrants from LMIC to HIC present with greater risk of frailty and vulnerability to adverse health outcomes.
- Adapting to life in HIC presents unique challenges for LMIC older migrants, which exacerbates frailty.
- The perceptions and experiences of frailty among older migrants from LMIC vary, and are influenced by personal, environmental, socio-cultural, and economic factors.
- Research on frailty among older migrants from LMIC to HIC must focus on specific factors that contribute to frailty among these migrant groups.

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ABSTRACT

Background: Frailty is increasingly becoming a public health concern, especially among vulnerable populations. Older migrants from Low- and Middle-Income Countries to High Income Countries present with poorer health and are at increased risk of becoming frail. This review aims to explore the prevalence, perceptions, and experiences of frailty among older migrants from Low- and Middle-Income Countries to High Income Countries.
Methods: This review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis. Five electronic databases were comprehensively searched for relevant literature published from January 1, 2000, to April 30, 2023. Quality appraisal for the quantitative studies was done with the Joanna Brigg's critical appraisal tool for analytic cross-sectional studies, and the qualitative studies were assessed with the Critical Appraisal Skill Program tool for qualitative studies.
Result: Seven studies met the inclusion criteria. Frailty was assessed using modified versions of the Frailty Phenotype and Frailty Index. The prevalence of frailty using the Frailty Phenotype was 16.6 %, and 17 % to 61.9 % according to the Frailty Index. The perceptions and experiences of frailty were characterised by chronic ill-health and a review of healthy pre-migration and early migration lives.
Conclusion: Despite the variation in frailty assessment methods, the high prevalence of frailty among older migrants was highlighted across the included studies. The perceptions and experiences of frailty reflect a state of resignation which can complicate the state of frailty. There is the need for ongoing research among migrant groups to identify their predisposition to frailty for early intervention.

1. Introduction

Globally, the number of older people is increasing rapidly, and this demographic shift is expected to increase the demand for healthcare and social services (Rudnicka et al., 2020). As people become older, their physiological systems steadily decline, leading to reduced functional

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capacity and increasing their risk of developing frailty. Frailty is a syndrome of decreased reserve and resistance to stressors, resulting from cumulative declines across multiple physiological systems (Dent et al., 2019). Frailty is associated with increased morbidity, mortality, and decreased quality of life (Bock et al., 2016). The financial cost of managing frailty has been flagged as a leading cause of high expenditure for families and national healthcare funding institutions (Fan et al., 2021; Chi et al., 2021; Han et al., 2019). The global prevalence of frailty is a complex phenomenon and remains unclear largely due to the absence of a universal definition and the lack of a universal tool to assess and diagnose frailty (Lally & Crome, 2007; Sobhani et al., 2021; Welstead et al., 2021; Taylor et al., 2019).

Older migrants from Low- and Middle-Income Countries (LMICs) to High Income Countries (HICs) experience poorer health outcomes and have been identified as being highly vulnerable and at risk of becoming frail (Shaaban, Peleteiro & Martins, 2020; O'Caoimh et al., 2018). Becoming frail as an older migrant often present as a double burden with unique experiences that can affect overall health and well-being (Arola et al., 2018). Migrants' perceptions and experiences of frailty may vary depending on sociocultural and individual factors. These beliefs, perceptions, and experiences may influence health outcomes and functioning through psychological, behavioural, and physiological pathways (Freeman et al., 2016; Levy et al., 2002; Levy, 2009).

As global migration continues to increase (Dao et al., 2021), many migrants continue to move from LMICs to HICs for work (Ewers et al., 2022) and humanitarian purposes (Zaun & Nantermoz, 2023). Existing LMIC migrants in HICs are becoming older and there is commensurate increase in the demand for social care and services (Salam et al., 2022). This increasing number of older migrants from LMICs to HICs require ongoing research into their characteristics and inherent predisposition to frailty. Despite the increasing body of knowledge on ageing and frailty, evidence on frailty among older migrants from LMICs to HICs remain fragmented.

To the best of our knowledge, there are no available systematic reviews that have explored the prevalence, perceptions, and experiences of frailty among older migrants from LMICs to HICs. Our search for systematic reviews across databases yielded no results, with only one narrative review found (Majid et al., 2020) that broadly highlighted the vulnerability of older migrants to frailty. However, narrative reviews have been criticised for lacking rigor and are prone to biases, and therefore cannot provide trustworthy results (Byrne, 2016).

Therefore, the aim of this study is to examine the prevalence, perceptions, and experiences of frailty among older migrants using a systematic methodological approach. Findings from our study will lead the way for developing, implementing, and reforming policies that meet the specific needs of this population group. Our study will also contribute to the growing body of literature on the intersection of frailty, ageing, and migration.

2. Methods

2.1. Study design

We employed a systematic review of quantitative, qualitative, and mixed method studies following the guidelines proposed by the Preferred Reporting Items for Systematic Reviews and Meta-analyses (Page et al., 2021). We included primary studies that report on frailty among older migrants from LMIC to HIC. The protocol for this systematic review was registered in The International Prospective Register of systematic Reviews (PROSPERO Registration ID: CRD42023429864)

2.2. Identifying research question

We used the Condition, Context, and Population (CoCoPop) as recommended by the Joanna Briggs Institute (JBI) Evidence Implementation Group to guide our selection of articles reporting on prevalence data for the review (Munn et al., 2018). The research question for this review is: what is the prevalence, experiences, and perceptions of frailty among migrants from LMIC to HICs? The Condition, Context, and Population concept for the focused research question is presented in Table 1 below.

2.3. Eligibility criteria

1. Quantitative, qualitative, and mixed method studies were included in the study.
2. Studies that measured frailty with validated frailty assessment tools (Bouillon et al., 2013; Dolenc & Rotar-Pavlič, 2019).
3. Studies that report on older migrants (50 years and above) born in LMIC and living in HIC were included in the study. For studies that reported on older migrants as part of a broader group (for example migrants < 50 years or migrants from HIC), only data reported on migrants from LMICs were included in the analysis.
4. Only articles published in English were included in the review.
5. We included articles published between January 1, 2000, and April 30, 2023. The date limitation was informed by the period when the clinical concept of frailty was first introduced (Fried et al., 2001; Rockwood et al., 2001).

2.4. Search strategy

The search strategy was developed in consultation with a health research librarian (JT) who is a co-author. An initial scoping search was conducted to locate published articles related to the topic, and to identify relevant terms, keywords, descriptors, and key authors. A structured search strategy was then designed using a combination of keywords and synonyms to represent each concept, and this was translated across selected relevant databases, including Google Scholar, CINAHL, PubMed, Embase and SCOPUS. The concepts were: Prevalence (terms used were prevalence, epidemiology, occurrence, statistics); Frailty (terms were frail, frailty, frail elderly); Older migrants (terms were immigration, emigration, migration, migrant, immigrant, emigrant, refugees, transients + aged, aged 80 and over) and Perception (terms were perception, attitude to health, psychology*, self-concept, self-perception, attitude, meaning, experience). The concept of HIC proved to be unwieldy and counterproductive as a search element, particularly when all 81 individual countries identified by the World Bank in 2022, were considered. Therefore, a decision was made to apply an HIC lens, as part of the review process. Where a database had a unique thesaurus of subject terms (for example, CINAHL and PubMed) these additional terms for each concept were combined with the relevant keywords. We adopted an iterative approach to refine, adjust, and refocus the search strategy in the light of sets of preceding results which optimised the identification of eligible studies. The search strategies for each database search are presented in Supplementary file A. The reference lists of all selected studies were consulted for leads to further literature.

2.5. Selection of studies

The identified citations were uploaded to Zotero version 6.0.26 (Vanhecke, 2008) and duplicates removed. The remaining studies were exported into Rayaan (Ouzzani et al., 2016) for further screening. Two authors (GD and RA) independently screened 10 % of the abstract and

Table 1
Identifying the research question.

Condition	Frailty assessment using validated assessment tools (Bouillon et al., 2013; Dolenc & Rotar-Pavlič, 2019), and experiences and perceptions of frailty.
Context of interest	Studies that were conducted in HIC according to World Bank classification of economies 2022 (World Bank, 2022).
Population	Older migrants (50 years and above) from LMIC to HIC.

titles of the studies in Rayaan. The independent screening yielded 93 % of agreement with the selection for inclusion and exclusion process. The 7 % discrepancies were agreed upon through consensus. One author (GD) completed the rest of the abstract and title screening. The included studies were further exported into Covidence (Covidence, n.d.), where the full text screening was independently completed by GD and RA. Any discrepancies were resolved through consensus. Both screening phases were monitored by the rest of the authors and the process was discussed at regular review meetings.

2.6. Assessment of methodological quality/ risk of bias

Quality assessment in mixed method systematic review ensures the validity and reliability of the study findings (Coeytaux et al., 2014; Gebrye et al., 2023). Assessment of methodological quality was carried out for the separate composition of data reported in the included studies. Two validated quality appraisal tools were employed in this study, one for each type of study.

The JBI Critical Appraisal checklist for analytical cross-sectional studies (Moola et al., 2020) was used to assess the quality of studies that adopted a cross-sectional approach. This appraisal tool evaluates the methodological robustness of included studies to ensure that confounding factors are well accounted for, and the appropriate steps taken to decrease the risk of bias. This tool assesses 8 criteria that include: the criteria for inclusion, study setting, measurement of exposure, managing confounding factors, the validity and reliability of the measured outcome, and the use of appropriate statistical analytic tool.

The Critical Appraisal Skills Program (CASP) tool was used to assess the quality of the qualitative studies (Critical Appraisal Skills Programme, 2023). The CASP tool is a validated and renowned tool that has been used across literature to assess the quality parameters in qualitative studies (Noyes et al., 2018). The CASP framework helps in the determination and evaluation of various aspects of qualitative research, including the study design, data collection, data analysis and the interpretation of findings. The summary of the quality assessment process and findings are presented in Tables 2 and 3.

2.7. Data extraction

Data extraction was carried out by one author (GD) using a predetermined data extraction form which was designed and approved by all the authors. Data extraction was monitored by the rest of the authors and discussed at regular author meetings. Two separate streams of data (qualitative and quantitative) were extracted based on the methodologies adopted in the respective studies. Data were extracted through an iterative process and the extraction form was modified to accommodate any new identified information from the studies. The data extraction form included essential components such as author details and citations, country and location of study, participant characteristics (sample size, ethnicity, or countries of origin of the older migrants and the ages of the participants), objectives, and the adopted methodologies. More specifically, prevalence data was extracted from the quantitative studies that assessed frailty, including the frailty assessment tools adopted and the health domains assessed for frailty. The health domains constituting the Frailty Index are presented in supplementary material B. The themes and concepts, including the author interpretations were extracted from the qualitative studies.

2.8. Data analysis

The data analysis followed an iterative narrative synthesis approach (Hong et al., 2017) for the separate streams of quantitative and qualitative data. Due to the heterogeneity in the quantitative studies, a thematic exploration of data was employed. Emerging themes and patterns in the numerical findings were identified and presented as a narrative. Key numerical information such as sample sizes, participant specific characteristics, frailty assessment methods and frailty prevalence were considered in the analysis. Contextual factors that influence the variability in outcomes were explored, providing a nuanced understanding of the quantitative evidence among the different older migrant groups.

Qualitative data, including patterns, participant narratives, and illustrative examples and themes were identified and organsed based on the identified concepts. The synthesis was presented as a weaved narrative of the qualitative findings of the perceptions and experiences of frailty among the older migrant groups.

3. Results

3.1. Search outcome

The search for literature across the five databases yielded 1915 results. A total of 510 duplicates were removed, and 1405 papers were screened. After abstract and title, and full text screenings, seven studies (Bray et al., 2018; Brothers et al., 2014; Castaneda-Gameros et al., 2018; Cheung et al., 2021, 2022; Franse et al., 2018; Walkden et al., 2018) met the eligibility criteria. The database search and screening process is presented in Fig. 1.

3.2. Study characteristics

Overall, data on 7672 older migrants from LMICs to HICs were reported across the included studies. Four of the studies were conducted in Europe, two in New Zealand, and one in the United Kingdom. The authors in the included studies used diverse methodological approaches. The cross-sectional approach was adopted in all the studies that measured frailty (Brothers et al., 2014; Castaneda-Gameros et al., 2018; Cheung et al., 2022; Franse et al., 2018; Walkden et al., 2018). The authors, Walkden et al., (2018) employed a complementary approach to assess frailty cross-sectionally at different time points. Castaneda-Gameros et al. (2018) adopted the sequential mixed method approach, and Cheung et al. (2021) utilised the phenomenological qualitative approach to explore the experiences of frailty. A summary of the characteristics of the included studies is presented in Table 4.

Table 2
Quality appraisal for quantitative studies.

Assessment criteria Author and year	Inclusion criteria	Study subjects and setting	Measured exposure	Standard measurement criteria	Confounding factors	Dealing with confounding factors	Measurement of outcome	Statistical analysis	% Quality score
Brothers et al. (2014)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
Castaneda-Gameros et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
Cheung et al. (2022)	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	75
Franse et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
(Walkden et al., 2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100

Table 3
Quality appraisal for qualitative studies.

CASP assessment criteria Author and year	Aims	Method	Design	Recruitment	Data collection	Relationship	Ethical issues	Analysis	Findings	Value of study	% quality score
Bray et al. (2018)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	90
Cheung et al. (2021)	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	90

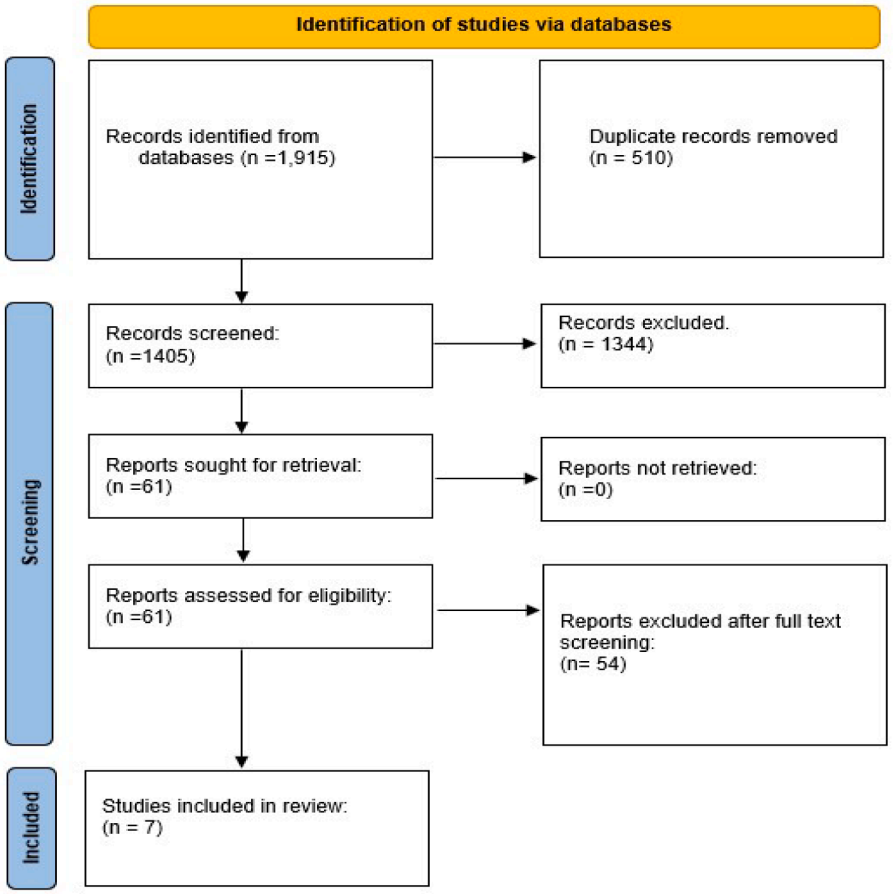

Fig. 1. PRISMA diagram for screening .

3.3. Frailty assessment methods

Frailty was assessed using two main instruments, the Frailty Phenotype (Fried et al., 2001) and Frailty Index (Rockwood et al., 2005).

Across all the studies, the chosen assessment tools were reportedly modified by the authors. Castaneda-Gameros et al. (2018) adopted and modified the Frailty Phenotype assessment tool. They reported substituting unintentional weight loss with poor nutritional intake for frailty assessment. The thresholds for slow walking, low physical activity, and poor nutritional intake were set at the lowest 20 % of the sample. Participants who demonstrated more than three positive criteria were noted to be frail, and scores of 1–2 were classified as prefrail. From the 56 older migrants from LMICs, frailty prevalence was estimated at 16.6 %. About 45 % and 38.4 % of the participants were noted to be pre-frail and non-frail respectively.

Four of the included studies (Brothers et al., 2014; Cheung et al., 2022; Franse et al., 2018; Walkden et al., 2018) adopted and modified the Frailty Index in their frailty assessment. Three of the studies (Brothers et al., 2014; Franse et al., 2018; Walkden et al., 2018) relied on secondary datasets while Cheung et al. (2022) cross-sectionally collected primary data for their study. The number of deficits measured varied across the studies, ranging from 35 items by Cheung et al. (2022) to 70 items by Brothers et al. (2014). Frailty prevalence across the included studies ranged from 17 % to 61.9 % using the Frailty Index. Only two studies (Franse et al., 2018; Cheung et al., 2022) reported definite prevalence with thresholds between 0.23 and 0.25. The remaining studies (Brothers et al., 2014; Walkden et al., 2018) provided estimates of frailty prevalence in comparison to similar cohorts from high income countries and non-migrant population.

3.4. Protective and risk factors to frailty

Older migrants in the included studies faced a complex interplay of risk and protective factors that influenced their vulnerability and development of frailty. Results from this review are consistent with previous studies in that, irrespective of the frailty assessment tools used, frailty was associated with increasing chronological age (Castaneda--Gameros et al., 2018; Walkden et al., 2018). Thus, older migrants who were relatively younger presented with less frailty. The lack of social support, and social isolation significantly increased the risk of frailty

Table 4
Characteristics of the included studies.

Author (s) citation/ Setting	Objective	Ethnicity of older LMIC migrants	Sample/ Age of participants from LMIC	Methodology/Frailty assessment tool	Findings on prevalence	Perception and experiences
Franse et al. (2018) Netherlands	To examine the association of ethnic background with frailty among older persons aged 55 years and older.	Indonesia, Suriname, Morocco, and Turkey	1011 first generation older migrants. 55 years and older. Mean age 77.8 years.	Cross-sectional using pooled data from The Older Persons and Informal Caregivers survey Minimum dataset TOPICS-MDS TOPICS-Frailty Index (45 items)	Older Indonesians were less frail 32.2 % (28.3 to 36.3) than Surinamese 36.9 % (30.7 to 43.6), Turkish 58.2 % (49.9 to 66.0) and Moroccans 43.1 % (35.0 to 51.5). (Threshold: $\geq$ 0.25)	NA
Walkden et al., 2018 Europe	To examine the impact of post migration living conditions in the development of frailty.	LMIC (Unspecified).	5299 older migrants from LMIC 50 years and above	Cross-sectional and longitudinal Frailty index (60 items)	Frailty index scores were 25.8 % (95 % CI: 23.4–28.2). Relationship between frailty and migration were heterogenous. Migrants host country played a role in the frailty trajectory.	NA
Cheung et al. (2022). Netherlands	To describe the general health and wellbeing of older Chinese with respect to their location.	China	134 Older Chinese migrants 60 years and above.	Cross sectional Frailty index (FI-35)	Frailty prevalence was 61.9 % (mean of 0.30) less than non-migrants in China (82.4 %, mean 0.39). (Threshold: 0.23) Frailty was closely associated with quality of life and loneliness in older migrants than their counterparts ageing in their home country.	NA
Brothers et al. (2014) Europe	To identify if differences in frailty exist between LMIC born migrants, HIC born migrants, and their counterpart natives.	LMIC (Unspecified)	1154 older migrants born in LMIC. 50 years and older	Cross-sectional Frailty Index (70 items)	LMIC migrants had higher frailty index scores in Northern/ Western Europe (adj. mean = 0.18, 95 % CI=0.17–0.19) than HIC born migrants (0.16, 0.16–0.17), and non-migrants (0.15, 0.14–0.15). Prevalence rates did not differ in Southern and Eastern Europe. Frailty index scores increased with age. Time since migration did not influence frailty scores in either region.	NA
Castaneda-Gameros et al. (2018) United Kingdom	Examine physical activity and sedentary time across frailty status.	Africa/ Caribbean, South Asia and Arab countries.	56 ethnically diverse older migrant women 60 years and above Mean age: 70.8	Sequential Mixed method Frailty Phenotype (5 items) Qualitative interviews	16.6 % frail, 38.4 % pre-frail, 45 % non-frail. ($>$ 3 criteria) Frail participants were older than non-fail. Slow walking and poor nutrition were predominant in frail and pre-frail. Frail group had poor nutritional, slow walking, and low PA than pre-frail.	Self-perceptions of ill-health. Perceived physical influences. Perceived socio-cultural influences.
Bray et al. (2018) New Zealand	To explore the lived experience of migrants dying away from their country of birth or origin.	South Africa, Tonga, Malaysia, Philippines, India, Fiji.	7 older migrants from LMIC Mean age: 60.7 years	Qualitative (Phenomenological approach)	NA	Living with two identities. Being in life review. Seeking resolution.
Cheung et al. (2021) New Zealand	To explore the meaning and experiences of frailty among older Chinese migrants.	China	11 Older Chinese migrants Mean age:76.5 years.	Qualitative exploratory. Focus group & interviews	NA	Frailty is marked by Ill health, medical comorbidities, and polypharmacy. Physical Weakness, Decline in Physical and Cognitive functioning. Association with Psychological and Social Health.

among the older migrant groups (Castaneda-Gameros et al., 2018; Cheung et al., 2022; Franse et al., 2018). Frailty was moderately associated with loneliness and low quality of life among older Chinese migrants in the Netherlands (Cheung et al., 2022). This similar trend manifested in the study by Castaneda-Gameros et al. (2018) where frailty was more prevalent among widows than married couples. Geographical locations of older migrants influenced their risk of developing frailty. Older migrants from LMICs had higher frailty scores in

Northern/ Western Europe than similar groups in Southern and Eastern Europe. Findings from the study by Franse et al. (2018) revealed that after adjusting for confounders, frailty prevalence varied across older migrant groups from 32.2 % in Indonesians to 36.9 % in Surinamese, 43.1 % in Moroccans and 58.2 % in older Turkish migrants.

3.5. Experiences and perceptions of frailty

The perception and experiences of frailty among older migrants are multifaceted and influenced by several factors. The included qualitative data (Bray et al., 2018; Cheung et al., 2021; Castaneda-Gameros et al., 2018) were conducted across a variety of settings in New Zealand and The United Kingdom among participants from the Pacific Islands, Africa, Asia, and The Caribbean. Most of the participants included in the studies were living with chronic medical conditions. While data collection by Bray et al. (2018) took place in a palliative care setting, older migrants in Cheung et al. (2021) and Castaneda-Gameros et al. (2018) were sampled from community groups.

The study participants had diverse opinions about frailty and frailty prevention. The study participants in Cheung et al. (2021) believed that the physical and cognitive decline associated with frailty were inevitable parts of ageing. The study participants in Castaneda-Gameros et al. (2018) however, were of the view that, despite this inevitability, continuous physical activity can slow or prevent physical and cognitive decline. The study participants in all the three studies reported their experiences and challenges living with chronic physical ailments, physical weakness, and cognitive decline often associated with old age. These challenges were perceived to be compounded by social isolation and loneliness (Bray et al., 2018; Cheung et al., 2021). Social support was perceived as a means of preventing depression through engaging in group physical activities (Castaneda-Gameros et al., 2018). Belonging to community groups facilitated engagement in health seeking behaviours. The demand for social and cultural belongingness was deemed as a cardinal need of frail older migrants which was not sufficiently attenuated by the presence of close family members, especially in end-of-life care (Bray et al., 2018).

4. Discussion

The aim of this mixed method systematic review was to explore the prevalence, experiences, and perceptions of frailty among older migrants from LMICs to HICs. Frailty at older age can reflect the early life experiences in both countries of origin and host HICs (Dimitriadis et al., 2023; Li et al., 2020). The findings from this review confirm this assertion, and despite living in the same geographical location, some groups of older migrants presented with higher frailty scores than others. Also, the social environment where people become older may play a significant role in the development of frailty (Duppen et al., 2019). As reported in this review, there were no differences in frailty scores among the different LMIC migrant groups in Northern and Western Europe as compared to their counterparts in Eastern and Southern Europe. The link between the social determinants of health (economic stability, education, access to healthcare, neighbourhood and built environment, and social and community context) and disease causation has been widely reported across literature (Braveman & Gottlieb, 2014; Lee et al., 2017). Understanding frailty pathways through this lens can play a significant role in the efforts to prevent or delay the progression of frailty (Tan et al., 2022; de Labra et al., 2018).

Moreover, the findings from this review also reveal that, the prevalence of frailty can vary depending on the frailty assessment tool employed. This difference in prevalence has been reported across literature (Shaharudin & Abd Rahman, 2022; Sukkriang & Punsawad, 2020). While these differences may be of concern, it is worth noting that, frailty assessment tools are designed for specific populations and settings (Cesari et al., 2014). The Frailty Phenotype mainly assesses the presence or absence of frailty risks while the Frailty Index objectively identifies deficits and present with a measure of an individual's capacity to accumulate these deficits over time (Feenstra et al., 2021; Blodgett et al., 2015). As noted in this review, some older migrants may demonstrate immense deficit in one frailty domain and may not meet the criteria for being classified as frail. This can delay frailty identification and intervention for older migrants from LMICs to HICs.

Older migrants from LMICs to HICs often struggle with multiple challenges associated with their health and wellbeing which exacerbate their experiences and perceptions of frailty as reported in this review. More importantly, older migrants may develop distinct coping strategies towards frailty, drawing from their previous life experiences and living conditions in HICs as they become older (Shafiq et al., 2023). The older migrants in this review demonstrate a sense of nostalgia for their homeland, with distinct reference to their childhood experiences and the cultural connotations of ageing. Understanding these subjective experiences and perceptions can aid in the early identification and the treatment of frailty through collaboration between government agencies, service providers and migrant communities. Existing evidence has demonstrated that, people respond better to healthcare interventions when they are actively involved in healthcare decision making process (Vahdat et al., 2014).

4.1. Strengths, limitations, and implications

This is the first study to use a systematic approach to explore the prevalence, perceptions, and experiences of frailty among older migrants from LMICs to HICs. Using a mixed method approach allowed for a deeper insight into the subjective experiences of older migrants which broadened the understanding of frailty beyond frailty assessment. The search for literature was comprehensive, covered a wide range of databases and was done in consultation with a health research librarian. Only studies that reported using validated frailty assessment tools were included in the review. Quality assessment of the included studies was done using validated and renowned tools.

Despite the significant strengths, the findings from this review must be interpreted with caution due to the limited number of studies included. All the participants in the included quantitative studies were based in Europe (at the time of their conduct), and all the qualitative studies in New Zealand and the United Kingdom. Within the quantitative studies, older migrants from LMIC constituted a smaller fraction of larger population studies. Three of the five studies that assessed frailty used the Survey of Health, Ageing and Retirement in Europe (SHARE) dataset, and The Older Persons and Informal Caregivers Survey Minimum Dataset (TOPIC-MDS). These large-scale longitudinal datasets contain limited number of older people from LMICs. More importantly, the data collection instruments in both datasets are general, and used for both migrants from other HICs and native HIC participants.

Potentially, the specific factors that may constitute frailty among older LMIC migrants may be overlooked. The findings of this review may therefore not be a true representation of frailty among older migrants in Europe, and by extension other geographical regions. Further research is recommended to assess frailty using variables and domains that are specific to the health and wellbeing of older migrants. Also, we recommend further research using similar frailty assessment instruments for older LMIC migrants in different geographical locations to understand the similarities and dissimilarities in the health domains that contribute to frailty. Finally, due to the ambiguity surrounding the link between frailty, ethnicity, and early life experiences, we recommend frailty assessment among older people in LMICs, comparing their frailty status to their counterparts who migrated to HICs.

We aimed at conducting a meta-analysis to determine the pooled prevalence of frailty among older migrants from LMICs to HICs. However, this aim was faced with challenges of data availability, methodological differences, small number of studies, unpublished data, and heterogeneity. Some of the authors in our included studies were contacted for further information but yielded no positive results.

There is also limited qualitative evidence on frailty among older migrants from LMIC. Narratives from the qualitative data represent a limited representation of older migrants from LMICs. Two of the qualitative studies were conducted in the community setting, with one focusing mainly on physical activity and frailty. The third set of qualitative data represent the experiences of older migrants in end-of-life care. The findings in this review, although can be a good starting point for research, must be interpreted with caution when considering using these findings for policy development. Further qualitative research is required to explore the lived experiences of frailty and ageing among older migrant groups to understand the contextual factors that influence their health and well-being in HIC.

5. Conclusion

This review sheds light on the prevalence, experiences, and perception of frailty among older migrants from LMIC to HIC. The prevalence of frailty, and the limited representation of LMIC migrant groups in research is a matter of concern. Also, as noted in this study, older migrant groups are heterogenous. Therefore, while conclusions can be drawn about the high susceptibility and vulnerability of older LMIC migrants to frailty, it is worth acknowledging that the factors that contribute to frailty differ among these groups. The recognition of these factors is crucial for policy makers to develop targeted interventions for older migrant groups. The perceptions and experiences of living with frailty in high income countries portray an increasing vulnerability which appears to be complicated by physical, social, and environmental factors.

Ethical consideration

This study did not involve human subjects. Only published literature was utilised, therefore, no ethical clearance was required for the study.

CRediT authorship contribution statement

Gideon Dzando: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing. **Paul Ward:** Conceptualization, Supervision, Writing – review & editing. **Hailay Abrha Gesesew:** Data curation, Methodology, Writing – review & editing. **Jessica Tyndall:** Data curation, Methodology, Writing – review & editing. **Rachel C. Ambagtsheer:** Conceptualization, Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing interests.

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Supplementary materials

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