What Factors Shape Self-Reported Health Among Community-Dwelling Older Adults? A Scoping Review

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RÉSUMÉ

L'état de santé autodéclaré est une mesure prédictive de la morbidité et de la mortalité au sein des populations. Cependant, les facteurs qui déterminent l'état de santé autodéclaré des personnes âgées vivant dans la collectivité, dont la population croît à l'échelle mondiale, ne sont pas encore clairement établis. L'objectif de cette recension des écrits était de résumer les facteurs associés à l'état de santé autodéclaré pour cette population et de cibler les principaux domaines de recherche futurs. Un examen de la portée a été réalisé en utilisant le cadre par étapes élaboré par Arksey et O'Malley. Le repérage de 30 publications a permis d'identifier 42 facteurs qui ont été résumés et organisés en quatre catégories. Les facteurs clés modulant l'état de santé autodéclaré comprenaient la présence de maladies chroniques et de symptômes dépressifs. Considérant que la population des personnes âgées vivant dans la communauté continue d'augmenter, il est nécessaire de comprendre comment les facteurs identifiés peuvent façonner l'état de santé autodéclaré. À ce jour, la recherche empirique dans ce domaine se limite à des études observationnelles ou transversales. Il est donc important d'explorer davantage ces facteurs dans le cadre d'études longitudinales.

ABSTRACT

Self-reported health is a predictive measure of morbidity and mortality across populations. A comprehensive understanding of the factors that shape self-reported health among community-dwelling older adults, a growing population globally, is lacking. The aim of this review was to summarize the factors that are associated with self-reported health among this population and identify key areas for future research. Accordingly, we conducted a scoping review using the stage-wise framework developed by Arksey and O'Malley. We summarized 42 factors, as identified in 30 publications, and organized them into four categories. Key factors shaping self-reported health included the presence of chronic conditions and depressive symptoms. As the population of community-dwelling older adults continues to increase, there remains a need to understand how these identified factors shape self-reported health. To date, empirical research has been limited to observational and cross-sectional designs. There is a need to further explore these factors in longitudinal data.

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Introduction

Global population aging has resulted in a prioritization of healthy aging policy, programming, and service provision for older adults. It is projected that by the year 2050, one in four people will be over the age of 60 years (World Health Organization, 2018). Parallel to this demographic shift is a health care system shift that is emphasizing aging-in-place – a strategy aimed at keeping individuals in their homes and communities longer. In order to best support these community-dwelling older adults, however, there is a need to fully comprehend how they understand and define health.

Self-reported health, also described as self-rated health or self-assessed health, is an individual appraisal of health status based upon individual perspectives (Banerjee, Perry, Tran, & Arafat, 2010; Jylhä, 2009; Knaüper & Turner, 2003). Self-reported health, a widely used measure in both health and epidemiological research, has been found to be a highly predictive measure of both morbidity and mortality and is typically inexpensive to administer (Banerjee et al., 2010; Idler & Benyamini, 1997; Jylhä, 2009). Within older adult populations, various factors – including economic status, sex, participation in physical activities, and the presence of certain chronic conditions – have been found to be associated with self-reported health (Dowd & Zajacova, 2007; Vuorisalmi, Lintonen, & Jylhä, 2005). Nonetheless, despite this broad evidence base, there has not been a review that has synthesized these wide-ranging factors among community-dwelling older adults. As self-reported health is a widely used measure to assess health status, there is a need to understand the current state of the literature and the opportunities for future study on this topic – especially as it concerns a growing population that is aging in place.

Purpose

By addressing these gaps in the literature, the scoping review serves as a form of knowledge synthesis that maps key concepts, evidence types, and knowledge gaps in research related to a specific and defined area (Colquhoun et al., 2014; Levac, Colquhoun, & O'Brien, 2010). The scoping review provides a broad overview of the literature through systematic searching and synthesis of existing evidence (Colquhoun et al., 2014). We selected the scoping review methodology for this study as it will provide an opportunity to summarize the evidence, identify research gaps, and make recommendations for future research related to factors associated with self-reported health among community-dwelling older adult populations and how these factors influence it. The aims of our review were (a) to systematically scope the literature related to factors that are associated with self-reported health among community-dwelling older adults; and (b) to identify key areas for future research.

Methodology

This scoping review followed the stage-wise framework developed by Arksey and O'Malley (2005). This included (a) identifying the research question; (b) identifying relevant studies; (c) selecting studies for review; (d) charting the data; and (e) collating, summarizing, and reporting the results. The findings of this review are reported in accordance with the PRISMA-ScR guidelines (Tricco et al., 2018).

Identifying the Research Question

To meet the objectives of this review, we developed two exploratory research questions: (a) What factors are associated with self-reported health among community-dwelling older adults? and (b) What opportunities for future research exist, including other methodologies or designs?

For this review, *community-dwelling older adults* are those older adults, aged 60 and older, who reside in any setting, exclusive of institutional (e.g., long-term care home) or hospital settings. These settings may include retirement living or transitional care facilities.

Identifying Relevant Studies

Information Sources. Relevant peer-reviewed studies were identified through a comprehensive search of the literature. This search included the following electronic databases: MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, and AgeLine. Reference lists of all included articles were hand searched for relevant articles not identified through database searching.

Search Strategy. We developed the search strategy and search terms in consultation with a health sciences librarian. Search terms included "older adult*" OR "senior" OR "elder*" and "self-report*" OR "self-rate*" OR "subjective health". The search we conducted used combinations and synonyms of the core concept keywords, including "older adult" and "self-reported health". We restricted the search to include only those articles published in the English language and publications between the years of 1975 and 2019.

Study Selection. Titles and abstracts of all articles retrieved were screened for relevance by two independent reviewers. Research articles were selected for review if the study pertained to (a) a sample of community-dwelling adults aged 60 years and older, and (b) self-

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reported health as an exposure or a measure. We excluded articles from the review if the study (a) did not study self-reported health as an exposure or a measure, (b) did not pertain to a community-dwelling population of older adults, (c) was unclear regarding the population studied, and (d) was not written in the English language. For example, we excluded a study if it did not analyze self-reported health for association with other factor(s), or if the study included a population of adults aged 18 and older with no separate analysis of an older adult sub-group. Despite the literature commonly defining older adults as those aged 65 years and older, our review included a less restrictive age range (i.e., adults 60 and older) so as to include some key longitudinal studies on the topic. Full-text copies of relevant articles were retrieved according to study selection criteria.

Charting the Data. Data from articles that met the inclusion criteria were extracted using a standardized data abstraction form created in Microsoft Excel. Data abstracted included author, year published, country, study aims, age range of the study participants, design and methods, definition of self-reported health, and key findings. Key findings included those factors (variables) associated with self-reported health, the nature of the association observed (e.g., whether the factor was associated with an increase or decrease in self-reported health), and any factors that were assessed but found not to have a statistically significant association with self-reported health. We identified key findings and themes from the extracted articles through numeric summary and qualitative thematic analysis.

Collating, Summarizing, and Reporting the Results. From the database searches, we identified 431 articles. We used two stages of independent screening to identify articles that met study inclusion criteria (see Figure 1 for PRISMA-style study search procedure). An additional 22 articles were identified through hand-searching reference lists of full-text articles. After removing duplicates, we read 339 titles and abstracts and screened them for relevance, resulting in 88 papers eligible for full-text review. These articles were read in full and examined for their eligibility for inclusion. Following full-text review of the 88 articles, we deemed 30 articles eligible and included those in this scoping review.

Geographic Locations. This review included14 studies completed with North American populations (4 in Canada, 10 in the United States). The remaining studies were completed with populations from Europe, including Germany ($n = 5$), Albania ($n = 1$), Finland ($n = 1$), the Netherlands ($n = 1$), Poland ($n = 1$), Turkey ($n = 1$), and Slovenia, Lithuania, and the United Kingdom ($n = 1$); South America, including Brazil ($n = 2$), Colombia ($n = 1$); and Asia, including Japan ($n = 3$), China ($n = 1$), and Taiwan ($n = 1$). See Table 1 for study characteristics including the design, objective, and population.

Types of Evidence. This scoping review included cross-sectional surveys ($n = 24$) and longitudinal designs ($n = 6$). There was no difference between the studies that used a cross-sectional design and those that used a longitudinal design with respect to the factors associated with self-reported health.

Description of Population. Included studies were diverse in the populations studied (see Table 1). Characteristics of the study population included the presence of multiple chronic conditions ($n = 3$); living alone ($n = 2$); being married ($n = 2$). Several of the studies also had

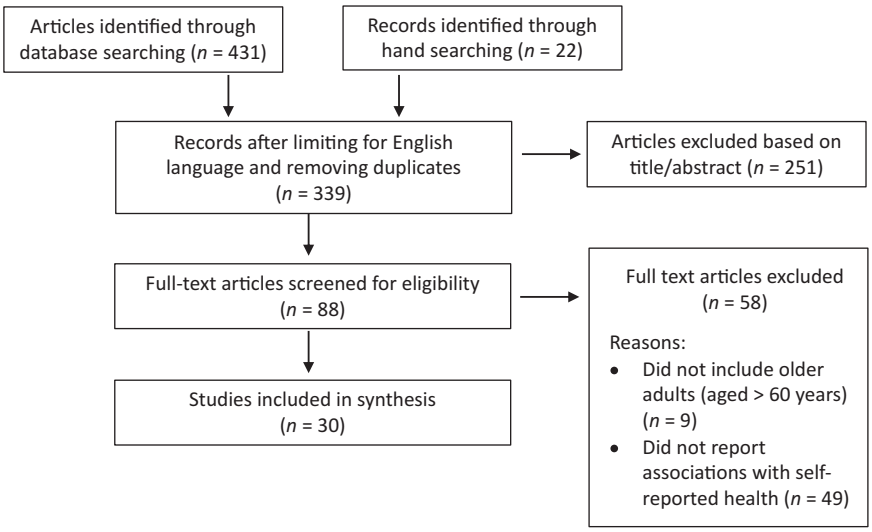

Figure 1: Study search procedure

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specific parameters for age ranges within the older adult population. These parameters of included studies were (a) individuals older than aged 60 years (n = 4); (b) those older than 65 years (n = 14); (c) those 75 years or older (n = 2); as well as (d) a handful of studies that further segmented the population (e.g., those aged 65–74 years or 60–84 years). One of the included studies included only a population of women while the other studies included both men and women.

Measuring Self-reported Health. Among included studies, self-reported health, also described as *self-rated health* or *subjective health*, was measured in different ways (see Table 2 for measures of self-reported health). This included measurement on a 5-point Likert scale (n = 22) with most studies including anchors of "excellent" to "poor" (n = 11), "very good" to "very bad" (n = 10), or "very healthy" to "unhealthy" (n = 2), while others used 4-point scales (n = 3). Two of the studies included did not describe the way that self-reported health was measured. Further, some of the included studies, for analytical purposes, used a collapsed self-reported health measure that converted the original 5- or 4-point scales to dichotomous measures (n = 5) or trichotomous measures (n = 2). This meant that in some studies, "positive" or "good" self-reported health included original anchors of excellent, very good, and good, while "negative" or "low" health included anchors such as fair or poor health.

Factors Associated with Self-reported Health

A total of 42 factors were identified as associated with self-reported health among community-dwelling older adults. The majority of these factors were measured using self-report (e.g., report on nutritional intake). These broad factors are grouped under the following four categories: sociodemographic variables; physical and psychiatric health; health-related behaviour; and emotional status (see Table 3 for a full description of the factors).

Sociodemographic Factors. Six sociodemographic factors were identified as associated with self-reported health among this population. With consistency, a higher level of education (n = 8); a higher economic status (n = 6); and White race (n = 2) were associated with higher self-reported health. There were also several sociodemographic factors that were reported in some studies to be associated with higher ratings of self-reported health (+) whereas in other studies were found to be associated with lower ratings of self-reported health (–). These factors included older age (+ n = 1; – n = 6); younger age (+ n = 1); identifying with the female sex (+ n = 2; – n = 5); and living alone because of divorce (– n = 1), being widowed (– n = 1), or being single (+ n = 2).

Physical and Psychiatric Health Factors. Many of the included studies focused on the association between single chronic conditions or a combination of chronic conditions with self-reported health. A higher number of chronic conditions (n = 18) and declining functional status (n = 8) were consistently associated with lower levels of self-reported health. In addition, it was found that not just the number of chronic conditions, but also the presence of specific conditions that consistently were associated with lower self-reported health. These conditions included a higher number of depressive symptoms (n = 10), diabetes (n = 3), arthritis (n = 3), hypertension (n = 2), and stroke (n = 2). Other physical or psychiatric health factors, consistently found to be associated with lower levels of self-reported health, included an inability to perform activities of daily living (n = 4), the presence of a serious health event (n = 2), higher number of hospital or primary care visits (n = 2), weight loss (n = 2), and the presence of pain (n = 2).

Health-Related Behaviour Factors. This third category of factors associated with self-rated health refers to those that describe health-related behaviours. These factors include those that relate to routines and habits (e.g., lifestyle, social determinants of health) (Riediger, Bombak, & Mudryj, 2019). Seven health-related behaviour factors were identified. Engaging in regular exercise (n = 4), reporting social integration or participation (n = 7), and engaging with social networks (n = 5) were consistently associated with higher levels of self-reported health.

Emotional Factors. This fourth and final category encompasses those factors related to emotional processes, personality, and context. Nine emotional factors were identified and were all consistently associated with higher levels of self-reported health: positive affect (n = 4), the presence of emotional support (n = 3), the presence of health-related control beliefs (n = 2), a high internal health locus of control (n = 2), absence of loneliness (n = 2), and increased positive perceptions of aging (n = 2).

Factors Not Associated with Self-reported Health. In addition to synthesizing those factors that were found to be associated with self-reported health, factors that were reported to not have a statistically significant association were also identified from those studies that reported these findings. These factors, found to have no relationship with self-reported health, included HbA1c level (n = 1), nutrition (n = 2), waist circumference (n = 1), faith affiliation (n = 1), and smoking status (n = 2).

Summary of Findings

This review identified 42 individual factors encompassing sociodemographic, physical and psychiatric health,

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Table 1: Study characteristics

Author (Year), Country	Design and Objective	Population
Banerjee, Perry, Tran, & Arafat (2010), USA	Cross-sectional study; use of population-based survey data To determine the association of functional status, chronic disease, and civic participation with self-rated health	Older adults aged 60 years and older ($n = 127$)
Benyamini, Idler, Leventhal, & Leventhal (2000), USA	Cross-sectional study; use of questionnaire data To gain understanding related to the information that is included in older adults' judgement of self-rated health	Older adults living in a retirement community ($n = 851$)
Beyer, Wolff, Warner, Shüz, & Wurm (2015), Germany	Longitudinal design; 2.5-year follow-up using face-to-face interviews and questionnaires To examine the relationship between self-perceptions of aging and self-rated health, and whether physical activity mediates this relationship in older adults with multimorbidity	Community-dwelling older adults aged 65–85 years with two or more chronic conditions ($n = 309$)
Brenowitz et al. (2014), USA	Longitudinal design; follow-up over 8 years; population-based To evaluate longitudinal, bi-directional associations between self-rated health and performance-based physical function	Older adults aged 65–89 years ($n = 3,610$)
Cheng & Chan (2006), China	Cross-sectional study; use of representative questionnaire data To examine the determinants of self-rated health among Chinese older persons	Community-dwelling older adults aged 60 and older ($n = 1,589$)
Heller, Ahern, Pringle, & Brown (2008), USA	Longitudinal design; 1-year follow-up using questionnaires To examine the impact of changes in comorbidity on self-rated health	Community-dwelling older adults aged 65 years and older ($n = 30,535$)
Ho (2018), Taiwan	Cross-sectional study; use of population-based survey data To explore self-rated health among older, widowed adults	Older adults aged 65 years and older ($n = 2,904$)
Jerković, Sauliüne, umskas, Birt, & Kersnik (2017), Slovenia, Lithuania, UK	Cross-sectional study; use of population-based survey data To identify factors associated with low self-rated health and investigate differences in urban areas in Slovenia, Lithuania, and United Kingdom	Urban older adults aged 65 years and older ($n = 2,547$)
Kara, B. (2017), Turkey	Cross-sectional study; use of client information form To explore the associations between poor self-rated health and participant characteristics glycemic control, perceived family support, and health-related quality of life in older adults with type 2 diabetes mellitus	Older adults aged 60 years and older with type 2 diabetes mellitus attending a diabetes outpatient clinic ($n = 113$)
Lau et al., (2018), Albania, Brazil, Colombia, and Canada	Cross-sectional study; use of questionnaire data from international study To examine whether resilience can correct the negative consequences of adverse childhood experiences	Older adults aged 65–74 years ($n = 1,506$)
Leibson et al. (1999), USA	Cross-sectional study; use of telephone interviews To test whether the association between self-rated physical health and clinically defined illness would differ for persons who do not have depression versus those who report minor or serious depressive disorder	Older adults with depressive symptoms ($n = 582$)
Leinonen, Heikkinen, & Jylhä (1999), Finland	Cross-sectional study; use of questionnaires and data collection interviews To examine the structure of self-rated health among a population over the age of 75 years	Older adults aged 75 years and older ($n = 382$)
Nützel et al. (2014), Germany	Cross-sectional study; use of national survey data To identify factors associated with self-rated health in multimorbid older adults accessing primary care	Older adults aged 65 to 85 years with multimorbidity who were accessing primary care ($n = 3,189$)

Continued

Table 1: Continued

Author (Year), Country	Design and Objective	Population
Perruccio, Katz, & Losina (2012), USA	Cross-sectional study; use of 3-year questionnaire data To investigate whether medical comorbidity effects are mediated through other health domains and whether these domains have independent effects on self-rated health	Older adults aged 65 and older receiving Medicare following total hip replacement ($n = 958$)
Pinto, Fontaine, & Neri (2016), Brazil	Cross-sectional study; use of population-based survey data To identify the influence of self-rated health as a mediator between physical/mental health and life satisfaction	Older adults aged 65 years and older ($n = 2,164$)
Puts et al. (2013), Canada	Prospective, longitudinal design; follow-up face-to-face and telephone interviews conducted at baseline, 1.5, 3, 6, and 12 months To determine the association between self-rated health and functional status, comorbidity, toxicity, and mortality in those older adults newly diagnosed with cancer	Older adults aged 65 years and older, newly diagnosed with cancer ($n = 112$)
Reyes-Gibby, Aday, & Cleeland (2001), USA	Cross-sectional study; use of population-based household survey data To examine the impact of pain on self-rated health	Older adults aged 70 years and older ($n = 8,222$)
Saito, Wakui, & Kai (2016), Japan	Cross-sectional study; use of questionnaire data To examine the impact of serious spousal illness on the self-rated health of older adults	Community-dwelling, married older adults aged 65 years and older ($n = 1,573$)
Schüz, Wurm, Schöllgen, & Tesch-Römer (2011), Germany	Cross-sectional study; use of national, representative survey data To determine whether predictors of self-rated health vary according to physical health status	Older adults aged 65 years and older ($n = 1,174$)
Segerstrom (2014), USA	Longitudinal design; 6–month wave follow-up over 5 years To test the context of dynamic change between chronological age, disease status, positive and negative affect with self-reported health	Community-dwelling older adults aged 75 years and older who were married ($n = 150$)
Spuling, Wolff, & Wurm (2017), Germany	Cross-sectional study; use of national cohort-sequential survey data To investigate response shift in self-rated health among older adults following a serious health event	Older adults aged 65 years and older ($n = 1,764$)
Sun et al. (2007), Japan	Cross-sectional study; use of questionnaire data To investigate and identify the factors associated with self-reported health	Older adults aged 65 years and older who live alone ($n = 4,465$)
Terner, Reason, McKeag, Tipper, & Webster (2011), Canada	Cross-sectional study; use of large, primary care survey data To assess whether health status is more impacted by age or number of chronic conditions	Older adults aged 65 years and older ($n = 3,132$) separated into "young" seniors (aged 6574), "middle" seniors (aged 75–84), and "old" seniors (aged 85 years and older)
Tobiasz-Adamcyzk & Zawisza (2017), Poland	Cross-sectional study; data collection via face-to-face data collection To assess the differences between the role of rural or urban social capital and its effect on self-rated health among older Polish people	Older adults aged 65 years and older ($n = 1,299$)
Vos et al. (2013), Netherlands	Cross-sectional study; use of health interview data from a large, national primary care survey To study the relationship between the number of chronic diseases and self-rated health and to explore possible combinations of chronic conditions on self-rated health among older women	Older women ($n = 315$) aged 70–74 years from a large survey
White, Philogene, Fine, & Sinha (2009), USA	Cross-sectional study; use of large, national survey data To determine if lower social support was associated with poorer general health status	Older adults aged 60 years and older ($n = 3,476$)

Continued

Table 1: Continued

Author (Year), Country	Design and Objective	Population
Wurm, Warner, Ziegelmann, Wolff, & Schüz (2013), Germany	Longitudinal study; two measurement points over six months To examine whether negative self-perceptions of aging impair self-regulation strategies, and thus, impact subjective health status	Older adults aged 65 years and older with multiple chronic conditions (n = 309)
Yoshimitsu et al. (2017), Japan	Cross-sectional study; face-to-face data collection To investigate the factors that influence self-rated health of older adults who live alone	Older adults aged 65 years and older, living alone for >1 year (n = 113)
Zhang & Jang (2017), USA	Cross-sectional study; use of national representative survey data To examine the ways in which internal locus of control is associated with self-reported health	Older adults; range in age from 60 to 84 years (n = 1,533)
Zunzunegui et al. (2004), Canada	Cross-sectional study; use of two neighbourhood surveys To evaluate the associations between older persons' health status and their social networks and integration	French-speaking population aged 65 years and older (n = 3,018)

health-related behaviour, and emotional factors that were associated with self-reported health among community-dwelling older adults.

The factors associated with self-reported health that were most frequently cited (i.e., in the greatest number of included studies) across the included studies were as follows: age, level of education, the number of chronic conditions present, the presence of depressive symptoms, functional status, and the presence of social participation. This descriptive review contributes new understanding related to the state of the knowledge on the factors associated with self-reported health.

Discussion

The purpose of this scoping review was to summarize the factors associated with self-reported health among community-dwelling older adults, identify gaps in this literature base, and make recommendations for future research. We will further discuss each of these three points.

Key Factors Associated with Self-reported Health

In this scoping review, we identified 30 publications and summarized 42 individual factors associated with self-reported health among community-dwelling older adults. Although the review has highlighted a broad range of factors associated with self-reported health, it has also highlighted inconsistencies across studies. It is because of these inconsistencies that further research is required.

Of these broad factors, the number of chronic conditions reported (n = 18) and the presence of depressive symptoms (n = 10) were the two factors that we found most commonly identified as being associated with self-reported health in the included studies. However, although the direction of the association of these factors with self-reported health is known, causality cannot be claimed. This is because of the study design (e.g., observational, cross-sectional), and because few studies have explored the mechanism that links these factors with self-reported health.

Multimorbidity, Self-reported Health, and Community-dwelling Older Adults. Multimorbidity, defined as the presence of two or more chronic conditions, is increasingly prevalent among older adults (Boyd & Fortin, 2010; Markle-Reid et al., 2018). As the population continues to age and life expectancy subsequently rises, health service use demand has also increased as a result of increasing multimorbidity (Canadian Institute for Health Information, 2011; World Health Organization, 2018). Until recently, single conditions were often studied in isolation. Following the recognition that older adults frequently experience a combination of chronic conditions, research on chronic conditions has

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Table 2: Measures of self-reported health

Measure of Self-reported Health	*n*	Citation
Five-point Likert scale (Excellent, very good, good, fair, poor)	11	Benyamini et al., (2000); Brenowitz et al., (2014); Cheng & Chan (2006); Heller et al., (2008); Ho (2018); Perruccio et al., (2012); Reyes-Gibby et al., (2001); Segerstrom (2014); Vos et al., (2013); White et al., (2009); Zhang & Jang (2017)
Five-point Likert scale (Very good to very bad)	10	Beyer et al., (2015); Jerković et al., (2017); Lau et al., (2018); Pinto et al., (2016); Puts et al., (2013); Schüz et al., (2011); Spuling et al., (2017); Tobiasz-Adamczyk & Zawisza (2017); Wurm et al., (2013); Zunzunegui et al., (2004)
Five-point Likert scale (Very healthy, healthy, average, somewhat unhealthy, unhealthy; Good to poor)	2	Leibson et al., (1999); Saito et al., (2016)
Four-point Likert scale (Unusually good, good, not so good, extremely bad; Excellent, good, fair, poor; Very good, good, fair, poor)	3	Kara (2017); Leinonen et al., (1999); Sun et al., (2007)
Dichotomous measure (Good vs. not good; Positive vs. negative; High vs. low)	5	Banerjee et al., (2010); Jerković et al., (2017); Sun et al., (2007); Vos et al., (2013); Zunzunegui et al., (2004)
Trichotomous measure (Poor/fair, good/very good, excellent; Healthy, average, unhealthy)	2	Ho (2018); White et al., (2009)
Visual Analogous Scale (0–100 rating with the higher number being better)	1	Nützel et al. (2014)
No description/not applicable	2	Terner et al., (2011); Yoshimitsu et al., (2017)

refocused on multimorbidity to better understand the combined and cumulative effects of these multiple chronic conditions (Wister et al., 2016). However, despite upwards of 30 per cent of older adults reporting the presence of multimorbidity (Canadian Institute for Health Information, 2011), and the presence of chronic conditions appearing as a factor associated with self-rated health in over half of the studies included in this review, there remains a need to understand how chronic conditions – and more specifically, how the presence of multimorbidity – influence self-reported health among older adults.

For example, multimorbidity was analyzed for its influence on self-reported health among older women in a study by Vos, Bor, van Rangelrooij-Minkels, Schellevis, and Lagro-Janssen (2013). In that research, combinations of the most common chronic conditions including arthritis, hypertension, diabetes, depression, and chronic pain were studied for their impact on self-reported health. Consistent with other studies in our review, the Vos et al. work found that ratings of low self-reported health were associated with older women with a greater number of chronic conditions (Vos et al., 2013). In addition, these researchers highlighted that all combinations of chronic conditions that were significantly associated with lower levels of self-reported health involved the presence of either chronic back pain or chronic headache (Vos et al., 2013). This finding highlights that, in addition to the presence of multimorbidity, underlying symptoms such as pain may be particularly important in understanding the connection between multimorbidity and self-reported health.

Our scoping review has highlighted the need to understand how multimorbidity as well as other factors such as advanced age, functional status, and social connectivity shape self-reported health among community-dwelling older adults.

Depressive Symptoms, Multimorbidity, and Self-reported Health. One of the most frequently identified factors associated with self-reported health in our review was the presence of depressive symptoms among older adults. Although we found both depressive symptoms and multimorbidity to be independently associated with self-reported health, it is also understood that the risk for depressive symptoms is increased by the presence of multimorbidity (Harpole et al., 2005; Wilson-Genderson, Heid, & Pruchno, 2017). Moreover, the presence of both depressive symptoms and multimorbidity may have a synergistic impact (i.e., an effect that is greater than the sum of the individual effects) on self-reported health.

When considering the wide-reaching impact of depressive symptoms on somatization, social functioning, and activities of daily living (Bruce et al., 2002), for example, it becomes difficult to disentangle what factors are potentially impacting health, physical or psychiatric conditions, or both. Knowing that upwards of 40 per

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Table 3: Factors associated with self-reported health

Factor	Association	Value	*n*	Citation
Sociodemographic Factors				
Age	Inconsistent	Age, older (+)	1	Yoshimitsu et al. (2017)
		Age, younger (+)	1	Zhang & Jang (2017)
		Age, older (–)	6	Benyamini et al. (2000); Ho (2018); Nützel et al. (2014); Perruccio et al. (2012); Segerstrom (2014)*; Spuling et al. (2017)
		Age, older (x)	2	Beyer et al. (2015)*; Zuzunegui et al. (2004)
Economic status	Mostly consistent	Economic status, higher (+)	6	Ho (2018); Kara (2017); Lau et al. (2018); Nützel et al. (2014); Perruccio et al. (2012); Zunsunegui et al. (2004)
		Economic status, lower (x)	1	Cheng & Chan (2006)
Education	Mostly consistent	Education, higher level (+)	8	Banerjee et al. (2010); Ho (2018); Jerković et al. (2017); Perruccio et al. (2012); Reyes-Gibby et al. (2001); Tobiasz-Adamcyzk & Zawisza (2017); Zhang & Jang (2017); Zunzunegui et al. (2004)
		Education, lower level (x)	1	Beyer et al. (2015)*
Race	Consistent	Race, White (+)	2	Reyes-Gibby et al. (2001); Zhang & Jang (2017)
Marital status	Inconsistent	Marital status, single (+)	2	Heller et al. (2008)*; Jerković et al. (2017)
		Marital status, divorced (–)	1	White et al. (2009)
		Marital status, widowed (–)	1	Ho (2018)
Sex	Inconsistent	Sex, female (+)	2	Sun et al. (2007); Zunzunegui et al. (2004)
		Sex, female (–)	5	Banerjee et al. (2010); Jerković et al. (2017); Kara (2017); Lau et al. (2018); Schüz et al. (2011);
		Sex, female (x)	2	Beyer et al. (2015)*; Jerković et al. (2017)
Physical and Psychiatric Health Factors				
Activities of daily living	Consistent	Activities of daily living, inability to perform (–)	4	Leinonen et al. (1999); Reyes-Gibby et al. (2001); Sun et al. (2007); Zunzunegui et al. (2004)
Body mass index	Inconsistent	Body mass index, higher (–)	1	Nützel et al. (2014)
		Body mass index, higher (x)	1	Kara (2017)
Number of chronic conditions	Consistent	Chronic conditions, higher number (–)	18	Benyamini et al. (2000); Beyer et al. (2015)*; Cheng & Chan (2006); Heller et al. (2008)*; Jerković et al. (2017); Kara (2017); Leinonen et al. (1999); Perruccio et al. (2012); Puts et al. (2013)*; Reyes-Gibby et al. (2001); Schüz et al. (2011); Segerstrom (2014)*; Sun et al. (2007); Terner et al. (2011); Tobiasz-Adamcyzk & Zawisza (2017); Vos et al. (2013); Yoshimitsu et al. (2017); Zhang & Jang (2017)
Presence of a chronic condition	Consistent	Chronic conditions, presence of arthritis (–)	3	Banerjee et al. (2010); Ho (2018); Perruccio et al. (2012)
		Chronic conditions, presence of asthma (–)	1	Ho (2018)
		Chronic conditions, higher number of depressive symptoms (–)	10	Lau et al. (2018); Leibson et al. (1999); Leinonen et al. (1999); Nützel et al. (2014); Perruccio et al. (2012); Reyes-Gibby et al. (2001); Schüz et al. (2011); Sun et al. (2007); Vos et al. (2013); Zunzunegui et al. (2004)
		Chronic conditions, presence of diabetes (–)	3	Banerjee et al. (2010); Ho (2018); Reyes-Gibby et al. (2001)
		Chronic conditions, presence of heart condition (–)	1	Ho (2018)

Continued

Table 3: Continued

Factor	Association	Value	*n*	Citation
		Chronic conditions, presence of hyperlipidemia (–)	1	Ho (2018)
		Chronic conditions, presence of hypertension (–)	2	Banerjee et al. (2010); Ho (2018)
		Chronic conditions, presence of kidney disease (–)	1	Ho (2018)
		Chronic conditions, presence of mental illness (–)	2	Jerković et al. (2017); Nützel et al. (2014)
		Chronic conditions, presence of migraine (–)	1	Vos et al. (2013)
		Chronic conditions, presence of severe back pain (–)	1	Vos et al. (2013)
		Chronic conditions, stroke (–)	2	Ho (2018); Reyes-Gibby et al. (2001)
Cognitive capacity	Consistent	Cognitive capacity, greater (+)	1	Leinonen et al. (1999)
Falls	Consistent	Falls, decreased risk (+)	1	Sun et al. (2007)
Functional status	Consistent	Functional status, physical, lower (–)	8	Banerjee et al. (2010); Benyamini et al. (2000); Brenowitz et al. (2014)*; Jerković et al. (2017); Lau et al. (2018); Reyes-Gibby et al. (2001); Schüz et al. (2011); Zhang & Jang (2017)
HbA1C	No relationship	Hemoglobin A1C level, higher (x)	1	Kara (2017)
Hospital visits	Consistent	Hospital/primary care visits, higher frequency (–)	2	Reyes-Gibby et al. (2001); Yoshimitsu et al. (2017)
Medication use	Consistent	Medication use, increased (–)	1	Benyamini et al. (2000)
Mobility	Consistent	Mobility, decreased (–)	1	Cheng & Chan (2006)
Nutrition	No relationship	Nutrition, low (x)	2	Cheng & Chan (2016); Jerković et al. (2017)
Pain	Consistent	Pain, presence of (–)	2	Nützel et al. (2014); Reyes-Gibby et al. (2001)
Physical health	Consistent	Physical health, decreased (–)	1	Perruccio et al. (2012)
Serious health event	Consistent	Serious health event, presence of (–)	2	Spuling et al. (2017); Wurm et al. (2013)*
Sleep quality	Consistent	Sleep quality, lower (–)	1	Cheng & Chan (2006)
Spousal illness	Consistent	Spousal illness, presence of (–)	1	Saito et al. (2016)
Vision	Consistent	Vision, high acuity (+)	1	Sun et al. 2007
Waist circumference	No relationship	Waist circumference, higher (x)	1	Kara (2017)
Weight loss	Consistent	Weight loss, presence of (–)	2	Benyamini et al. (2000); Sun et al. (2007)

Continued

Table 3: Continued

Factor	Association	Value	*n*	Citation
Health-Related Behavioural Factors				
Exercise	Mostly consistent	Exercise, regular (–) Exercise, regular (x)	4 1	Benyamini et al. (2000); Beyer et al. (2015)*; Jerković et al. (2017); Zunzunegui et al. (2004) Jerković et al. (2017); Schüz et al. (2011)
Religion	No relationship	Religious/faith affiliation, absence of (x)	1	Banerjee et al. (2010)
Smoking	No relationship	Smoking status (x)	2	Jerković et al. (2017); Schüz et al. (2011)
Social integration	Consistent	Social integration/participation, presence of (+)	7	Banerjee et al. (2010); Benyamini et al. (2000); Perruccio et al. (2012); Sun et al. (2007); Tobiasz-Adamcyzk & Zawisza (2017); White et al. (2009); Zunzunegui et al. (2004)
Social mobility	Consistent	Social mobility, presence of (+)	1	Sun et al. (2007)
Social networks	Consistent	Social networks, engaging with (+)	5	Kara (2017); Nützel et al. (2014); White et al. (2009); Yoshimitsu et al. (2017); Zunzunegui et al. (2004)
Volunteerism	Consistent	Volunteerism, not participating in (–)	1	Banerjee et al. (2010)
Emotional Factors				
Affect	Consistent	Affect, positive (+)	4	Benyamini et al. (2000); Cheng & Chan (2006); Schüz et al. (2011); Segerstrom (2014)*
Coping	Consistent	Coping, difficulty with (–)	1	Banerjee et al. (2010)
Emotional support	Consistent	Emotional support, presence of (+)	3	Kara (2017); White et al. (2009); Yoshimitsu et al. (2017)
Health related control beliefs	Consistent	Health related control beliefs, presence of (+)	2	Nützel et al. (2014); Schüz et al. (2011)
Internal health locus of control	Consistent	Internal health locus of control, high (+)	2	Zhang & Jang (2017); Zunzunegui et al. (2004)
Life satisfaction	Consistent	Life satisfaction, presence of (+)	1	Pinto et al. (2016)
Loneliness	Consistent	Loneliness, absence of (+)	2	Tobiasz-Adamcyzk & Zawisza (2017); Zunzunegui et al. (2004)
Self-perceptions of aging	Consistent	Self-perceptions of aging, increased (+)	2	Beyer et al. (2015)*; Wurm et al. (2013)*
Resiliency	Consistent	Resiliency, presence of high (+)	1	Lau et al. (2018)

+ associated with a higher self-reported health rating
– associated with a lower self-reported health rating
x no statistical significance with self-reported health rating
*** longitudinal study design**

cent of older adults report the presence of depressive symptoms (Bruce et al., 2002; Gallegos-Carrillo et al., 2009), and that depression is a frequently underdiagnosed and undertreated condition among this population (Bruce et al., 2002; Markle-Reid et al., 2014), future research is warranted to explore the ways in which depressive symptoms shape self-reported health among older adults and/or interact with multimorbidity in shaping self-reported health.

For example, in one study by Reyes-Gibby, Aday, and Cleeland (2001), older adults with depression were found to be twice as likely to report fair or poor self-reported health (73%) in comparison to those who did not report depression (31%). The association of depression and depressive symptoms to subjective health status, as highlighted in a meta-synthesis by Pinquart (2001), is likely related to (a) an increased risk for depression because of increasing physical illness in older age; (b) the physical symptoms that depression may exacerbate or produce, such as lack of energy, which can worsen health status and, likely, health ratings; and (c) the presence of negative affect and negative evaluation of the self which is a cognitive symptom of depression.

Identified Gaps in Literature. Findings from our scoping review have highlighted that, to date, the literature related to self-reported health has mostly been exploratory. This exploratory nature of the literature has resulted in a fragmentary understanding of how, or the process by which, the identified factors shape self-reported health.

Identified by Lau, Guerra, de Souza Barbosa, and Phillips (2018), high resiliency – as measured using the Wagnild Resilience Scale (Wagnild & Young, 1993) – was associated with high levels of self-reported health. Resiliency, defined as a process of positive adaptation toward adversity, trauma, or stress (American Psychological Association, 2015) that draws upon dynamic personal characteristics (Masten, 2007), has been linked to successful aging (Stewart, Auais, Bélanger, & Phillips, 2018). Although there has been much study on resilience as an outcome measure, this study is one of the first of its kind to study resilience and its association with self-reported health among community-dwelling older adults (Lau et al., 2018). This unique finding led Lau et al. (2018) to propose that resiliency may serve to increase the level of self-reported health (i.e., more positive self-reported health), and, in addition, may shape or be shaped by other factors that are fundamental to personal definitions of health.

Drawing upon the literature on resilience, a resilience index was developed by Wister et al. (2018). This resilience index maps functional (e.g., activities of daily living), psychological (e.g., depressive symptoms), and social variables (e.g., social support) to resiliency among older adults. The level of resilience, calculated using this index, as well as the individual variables that comprise this index may serve to shape self-reported health among community-dwelling older adults as it was found that total resilience is associated with perceived health status (Wister et al., 2018).

There are further opportunities to explore the relationship between those factors the studies associated with both resilience as well as self-reported health. Although only one study in our review identified resilience as an associated factor, several of the factors identified in other studies, from each of the four categories, are factors commonly associated with resilience. For example, these commonalities include (a) *sociodemographic factors* such as age (Gooding, Hurst, Johnson, & Tarrier, 2011; Laird et al., 2019), economic status (Wells, 2009), education (Pietrzak & Cook, 2013), ethnicity (Laird et al., 2019), and sex (Hardy, Concato, & Gill, 2004); (b) *physical and psychiatric health factors* such as an ability to perform instrumental activities of daily living (Hardy et al., 2004), number of chronic conditions (Gooding et al., 2011; Laird et al., 2019; Wells, 2009), mental illness (Gooding et al., 2011; Pietrzak & Cook, 2013; Wells, 2009) including depressive symptoms (Hardy et al., 2004; Laird et al., 2019), cognitive capacity (Laird et al., 2019; Lamond et al., 2008), and physical health (Pietrzak & Cook, 2013; Wells, 2009); (c) *behavioural factors* such as social integration (Lamond et al., 2008; Pietrzak & Cook, 2013) and social networks (Fuller-Iglesias, Sellars, & Antonucci, 2008; Wells, 2009); and (d) *emotional factors* like coping (Laird et al., 2019; Lamond et al., 2008), locus of control (Lamond et al., 2008), and self-perceptions of aging (Lamond et al., 2008).

Beyond the identified associations, and considering the substantial development of the resilience literature and the alignment between factors associated with both resilience and self-reported health, there remains a gap in understanding related to how these factors may shape self-reported health and how this knowledge may in turn shape public policy or health and social interventions. With this knowledge there is the potential to improve health outcomes for this population.

Of the 42 factors we identified in this scoping review, 20 of them can be categorized as physical and psychiatric health condition factors. Considering this emphasis, and knowing that despite the challenges associated with multimorbidity and depressive symptoms among community-dwelling older adults, self-reported health is not always aligned with objective health status (Canadian Longitudinal Study on Aging, 2018; Wister et al., 2018), there is a need to understand

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what is considered when community-dwelling older adults define and describe their health and how resilience may shape this process.

Future Opportunities

Identified in this scoping review literature were a number of opportunities for future inquiry and research. These opportunities include the need to understand self-reported health within the context of (a) resiliency; (b) multimorbidity, including factors that mediate and modify the relationship between multimorbidity and self-reported health; and (c) more specifically, how depressive symptoms interact with multimorbidity and other factors to shape self-reported health among community-dwelling older adults. Although there has been exploratory, statistical work over the past few decades, there remains a need to study the process and mechanism that drives how self-reported health is shaped by these factors using longitudinal data. This understanding, addressing current gaps in the literature, and framed by theory related to these concepts, could be used to develop effective interventions aimed at building resilience and maintaining higher levels of self-reported health into older adulthood.

Limitations

As our review focused upon self-reported health as a health measure or exposure, it is possible that we may have missed studies that referred to self-reported health simply as the health status of the individual. We consulted a health sciences librarian on the search strategy and the search terms remained iterative; nonetheless, it is possible that studies that described subjective health status may have been missed due to the keywords used. In addition, because this review defined older adults as those 60 years or older in age, studies with a younger, older adult population (e.g., those aged 55 years or older) were excluded. It is possible that this definition meant the exclusion of studies that included a younger population of older adults.

Warranting further study, this review is limited by the current state of the literature itself as it relates to the concept of resilience among an older adult population. Although only one study included in this review highlighted the fact that resilience was associated with self-reported health, several of the factors identified – for example, an ability to perform activities of daily living; functional status; or social participation – are those which have been described as being related to and comprising measures of resilience (Wister et al., 2018). There is a need to further explore this conceptual literature related to resilience and the ways in which it overlaps with self-reported health among community-dwelling older adults. In addition, there is a need for future research on this topic to study the relationships between additional factors absent in this evidence, such as immigration status or substance use.

Conclusion

In this scoping review, we identified a body of research that focused on factors associated with self-reported health among community-dwelling older adults. The available literature provided a broad overview of socio-demographic, physical and psychiatric, health-related behaviour; as well as the emotional factors that are associated with self-reported health. Additionally, this review highlighted the need to further understand these factors in terms of how they shape self-reported health and the mechanism underlying the associations identified. As the population of older adults continues to increase, multimorbidity is becoming an important focus in health research. The results of this review emphasize a need to explain how multimorbidity shapes self-reported health, as well as to identify the potential synergistic impacts of co-existing depressive symptoms. A better understanding of these issues will inform how best to support healthy aging and the factors that may contribute to health and wellness.

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