



Community Health Perspectives on Middle-aged Adults Living Alone: A Scoping Review

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Abstract

This scoping review synthesizes evidence on the physical health, mental well-being, health behaviors, and overall quality of life of middle-aged adults living alone, highlighting its significance from a community health perspective. Recognizing the rapid growth of this demographic, this review evaluates the current research landscape, identifies critical gaps, and explores opportunities for targeted interventions. Following the JBI Scoping Review Guidelines, comprehensive searches were conducted in Ovid-Medline, Ovid-EMBASE, APA PsycInfo, and CINAHL Complete for studies published between 2000 and 2024 on middle-aged adults (45–64 years) living alone. Randomized and non-randomized trials and quantitative and qualitative studies were considered. Two reviewers independently screened titles and abstracts before performing full-text reviews of the articles. Data on study characteristics, participant profiles, and health-related outcomes were extracted. Of the 19,519 studies initially identified, 44 were included. The studies were categorized based on design, population characteristics, and health outcomes. The results indicate that middle-aged adults living alone experience poorer physical and mental health and engage in less favorable health behaviors than their counterparts in multi-person households. Key determinants, such as socioeconomic status, geographic location, and healthcare access, contribute to these disparities. These findings underscore the urgent need for community-based strategies to reduce social isolation, improve healthcare accessibility, and promote healthier lifestyles, thereby addressing the critical public health gaps faced by this vulnerable population.

Keywords Middle-aged adults living alone · Physical health · Mental well-being · Health behaviors · Life satisfaction

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Background

The number of single-person households has increased significantly both in Korea and worldwide. Notably, middle-aged adults represent a large proportion of these households. For example, in the United States, 50% of individuals aged 40–49 years and 55% of those aged 50–59 years live alone [1]. Similarly, in Korea, 34.5% of all households were single-person in 2022, with individuals aged 40–59 years comprising 28.2% of this demographic [2].

Substantial evidence reported across numerous systematic reviews and meta-analyses has linked living alone to adverse biopsychosocial health outcomes. Specifically, living alone is associated with increased mortality among community-dwelling adults under 65 years of age [3]. Additionally, a significant association between living alone and lower levels of positive mental health was observed in three of four studies [4]. Furthermore, research has linked living

alone and social isolation to an increased risk of sarcopenia [5].

Middle age is considered a transitional phase into older adulthood and a pivotal period for establishing physical and psychosocial health, significantly influencing the prospects for successful aging [6]. Research on living alone has long focused on older adults, creating a substantial literature stream on the health challenges and outcomes of living alone in later life. This emphasis has also shaped policies and welfare programs, which predominantly focus on older adults living alone. However, middle-aged single-person households are increasing rapidly, and their health in this phase critically influences their prospects for healthy aging. Despite this, research on the biopsychosocial health of middle-aged adults living alone (MALA), as well as the specific factors affecting their well-being, is notably scarce. Moreover, living alone in midlife intersects with broader social determinants of health, such as socioeconomic status, employment stability, and healthcare access, exacerbating disparities in health outcomes and positioning MALAs as a vulnerable group from a public health perspective. Although welfare programs have traditionally prioritized older adults, the rapid growth of middle-aged single-person households highlights a critical blind spot in community health planning and policies. Interventions during midlife may alter long-term health trajectories and reduce future burdens on healthcare systems, thereby making addressing this gap essential.

This scoping review aimed to provide a comprehensive overview of mental and physical health, health behaviors, and health-related factors among the MALA population. By examining the current research landscape in these areas, the purpose of this review was to identify knowledge gaps and opportunities to improve the health and well-being of this population. This review addressed several key questions. First, it explored the current state of research on the health and life satisfaction of MALAs. Second, it examined their overall health status, including life satisfaction, to assess their well-being. Third, it investigates the factors associated with the health and life satisfaction of these individuals. Finally, the review considered previously developed interventions that aimed to improve the health and life satisfaction of the MALA population, identifying potential strategies for enhancing their quality of life.

Methods

Search Strategy

This study used a scoping review design, adhering to the methodological framework outlined by the JBI Scoping

Review Guidelines [7]. A comprehensive search strategy was applied to explore mental and physical health, health behaviors, and health-related factors in the MALA population. The research protocol is registered in the Open Science Framework (<https://doi.org/10.17605/OSF.IO/CA7PT>).

For this review, a researcher with expertise in scoping reviews conducted comprehensive literature searches on Ovid-Medline, Ovid-EMBASE, APA PsycInfo, CINAHL Complete, Korea Med, KMBASE, and RISS4u, including MeSH (Medical Subject Heading) terms. The following MeSH terms were combined: “living alone,” “single household,” “one-person household,” “solo-living,” “single-person household,” and “middle age” (Appendix 1). The initial search was conducted between December 2022 and January 2023, and an updated search was performed on January 16, 2024.

Eligibility Criteria and Study Selection

Regarding the inclusion and exclusion criteria for this study, eligible participants were middle-aged adults between 45 and 64 years of age who lived alone. We excluded studies where the term “single person” was used only to describe an individual who was unmarried or divorced, and in cases where whether the individual actually lived alone was unclear. We focused on mental health (including life satisfaction), physical health, health behaviors, and health-related factors. This review included randomized controlled trials (RCTs), non-randomized controlled trials (non-RCTs), quantitative descriptive studies (cross-sectional studies), and qualitative studies. However, literature review articles were excluded. To ensure the use of contemporary evidence, studies published before 2000 were excluded, as were studies published in languages other than English or Korean.

Two reviewers independently first screened the titles and abstracts of the articles according to the selection criteria and then conducted a full-text review of the selected studies. Any discrepancies during the selection process were resolved through discussions among the research team.

Data Extraction

Two reviewers performed the data extraction independently using a standardized form developed after piloting the extraction process with a sample of studies. The data extraction form captured key study characteristics, including the author, year and country of publication, study design, sample size, participant characteristics, measurement tools, interventions, comparison groups, and key findings.

Data Analysis

To assess the current state of research and identify gaps, we categorized the studies based on their design, settings, populations, and other relevant factors before conducting a frequency analysis. To better understand health levels, we coded the extracted data, organized the codes, and then grouped them into categories. The results were synthesized and presented in tables and stacked bar charts following the thematic analysis approach outlined by Braun and Clarke [8].

Results

The search yielded 19,519 records. After removing duplicates, 14,805 studies were screened based on titles and abstracts, resulting in 94 studies selected for full-text review. After excluding nine studies for which the full text was unavailable, 85 full-text articles were reviewed. Of these, 44 were deemed eligible for inclusion in this review (Fig. 1). Studies were excluded after full-text review if they did not focus on health, health behaviors, or life satisfaction ($n=9$), did not include middle-aged adults living in single-person households ($n=27$), or were irrelevant to the present study design, such as reviews ($n=5$) (Appendix 2).

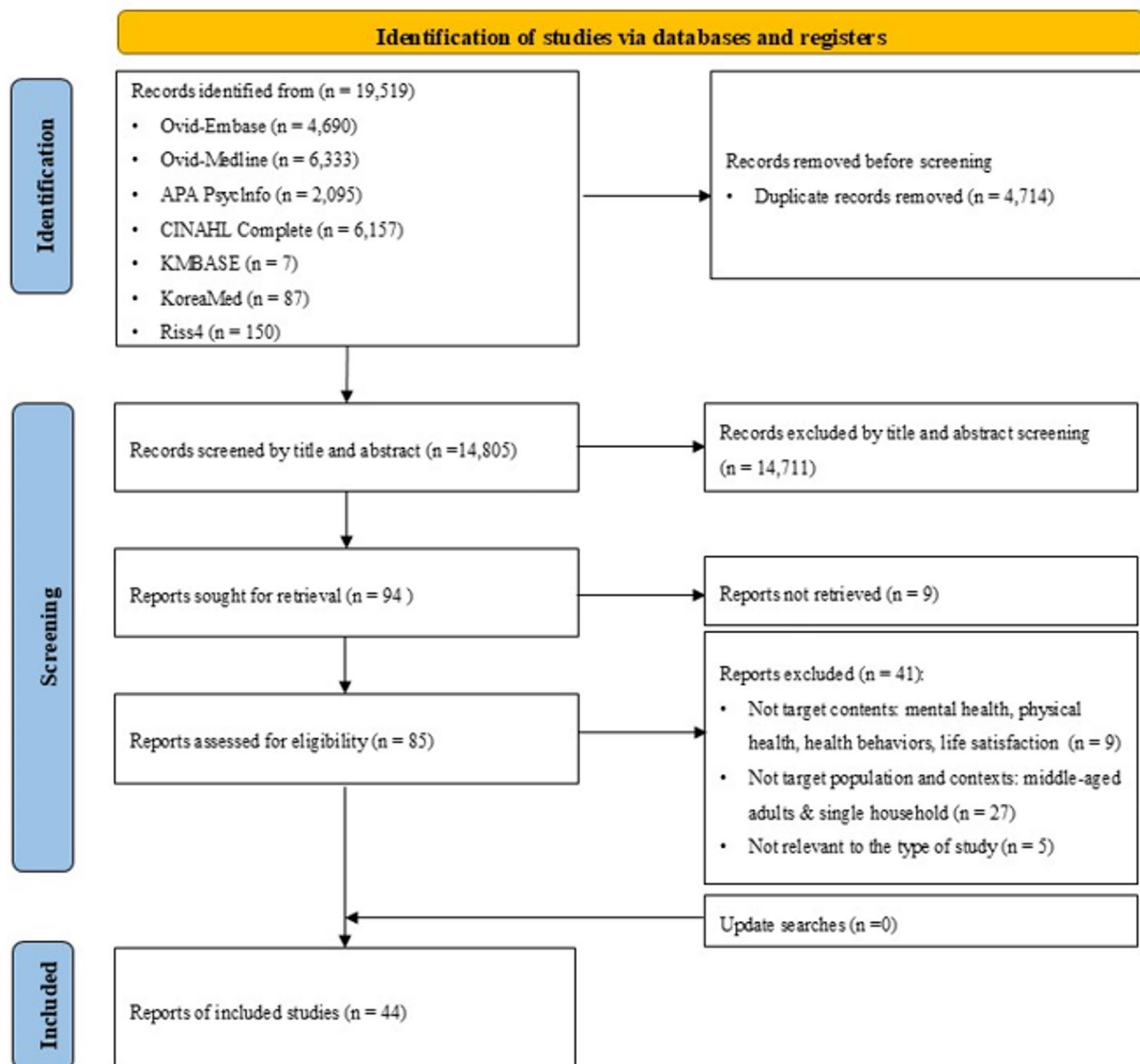


Fig. 1 PRISMA flow diagram

Study Characteristics

The study characteristics are summarized in Table 1. Eight studies (18.2%) were published in 2020, seven (15.9%) in 2021, and 11 (25.0%) in 2022, indicating an increasing trend in research on the health of MALAs since 2017. Most of the studies ($n=29$, 65.9%) were published in South Korea.

Of the included studies, 28 (63.6%) focused on MALAs, whereas 16 (36.4%) examined either living alone or middle age as variables. Most of the studies ($n=40$, 90.9%) followed a correlational design, and none were experimental studies. Regarding topic scope, the most common focus was physical health ($n=29$, 65.9%), followed by mental health ($n=21$, 47.7%) and health behavior ($n=13$, 29.5%). Studies

analyzing health status were the most prevalent ($n=35$, 79.5%), followed by studies examining health-related factors ($n=17$, 38.6%), and those investigating changes in health ($n=4$, 9.1%).

Health Status of MALAs

The outcome variables from studies on the health of MALAs organized into physical health, mental health, and health behavior categories. The analysis of these categories revealed that the health outcomes reported for MALAs were predominantly negative across all categories (Fig. 2).

Physical Health of MALAs

Coding and extracting outcome variables related to physical health from the included studies revealed four subcategories: quality of life, aging and other health, metabolic syndrome and obesity, and cardiovascular health. Quality of life was the most frequently studied variable ($n=16$, 36.4%), followed by aging and other health ($n=8$, 18.2%), metabolic syndrome and obesity ($n=7$, 15.9%), and cardiovascular health ($n=3$, 6.8%). The physical health of MALAs was generally reported to be negative across all subcategories. Variables related to positive outcomes and factors concerning the quality of life of MALAs were more frequently reported than other subcategories (Fig. 3).

Quality of Life

Quality of life was determined based on variables such as chronic disease [9–13], disability [9], mobility limitations [14], activities of daily living [15], self-rated health [12, 14, 16–22], subjective health status [23], quality of life (Euro-Qol 5 Dimension [EQ-5D]) [12, 24], health-related quality of life (EQ-5D) [23], and fair or poor health [15].

Among the 16 studies on the quality of life of MALAs [9–24], 10 [9, 15, 16, 18–24] compared these individuals with those living in multi-person households. In six studies [9, 16, 18–20, 22], the quality of life of MALAs was reported to be more negative than that of middle-aged individuals living with their families. The variables measured in these six studies included chronic disease ($p < .01$ [9]), disability ($p < .05$ [9]), and self-rated health ($p < .01$ [18], $p < .05$ [20], $p = .01$ [22]).

Only two studies [21, 24] reported a more positive quality of life among MALAs than among middle-aged individuals living in multi-person households. Study 24 measured quality of life using the EQ-5D and analyzed the results with logistic regression models, finding an odds ratio of 1.375 (95% CI 1.122–1.684) for single households compared with three-generation households. Study 21 used

Table 1 Characteristics of the included studies ($N=44$)

Category		Number	(%)
Publication year	2001	1	(2.3%)
	2002	1	(2.3%)
	2008	1	(2.3%)
	2009	1	(2.3%)
	2011	1	(2.3%)
	2015	1	(2.3%)
	2017	4	(9.1%)
	2018	4	(9.1%)
	2019	4	(9.1%)
	2020	8	(18.2%)
	2021	7	(15.9%)
	2022	11	(25.0%)
Country	Europe	Across Europe	1 (2.3%)
		Finland	1 (2.3%)
		France	1 (2.3%)
		France and Sweden	1 (2.3%)
		Sweden	2 (4.5%)
		Netherlands	2 (4.5%)
	Asia	Japan	2 (4.5%)
		Korea	29 (65.9%)
		Taiwan	1 (2.3%)
	US	4	(9.1%)
Study classification	Study on MALAs ^a	29	(65.9%)
	Study using MALAs as a variable for a different topic	16	(36.4%)
Study design	Correlational design	40	(90.9%)
	Descriptive design	3	(6.8%)
	Qualitative study	1	(2.3%)
Main topic area	Physical health	29	(65.9%)
	Mental health	21	(47.7%)
	Health behavior	13	(29.5%)
Health outcomes	Health level	35	(79.5%)
	Health-related factors	17	(38.6%)
	Health changes	4	(9.1%)
	Health experiences	1	(2.3%)

^aMALAs: Middle-aged Adults Living Alone

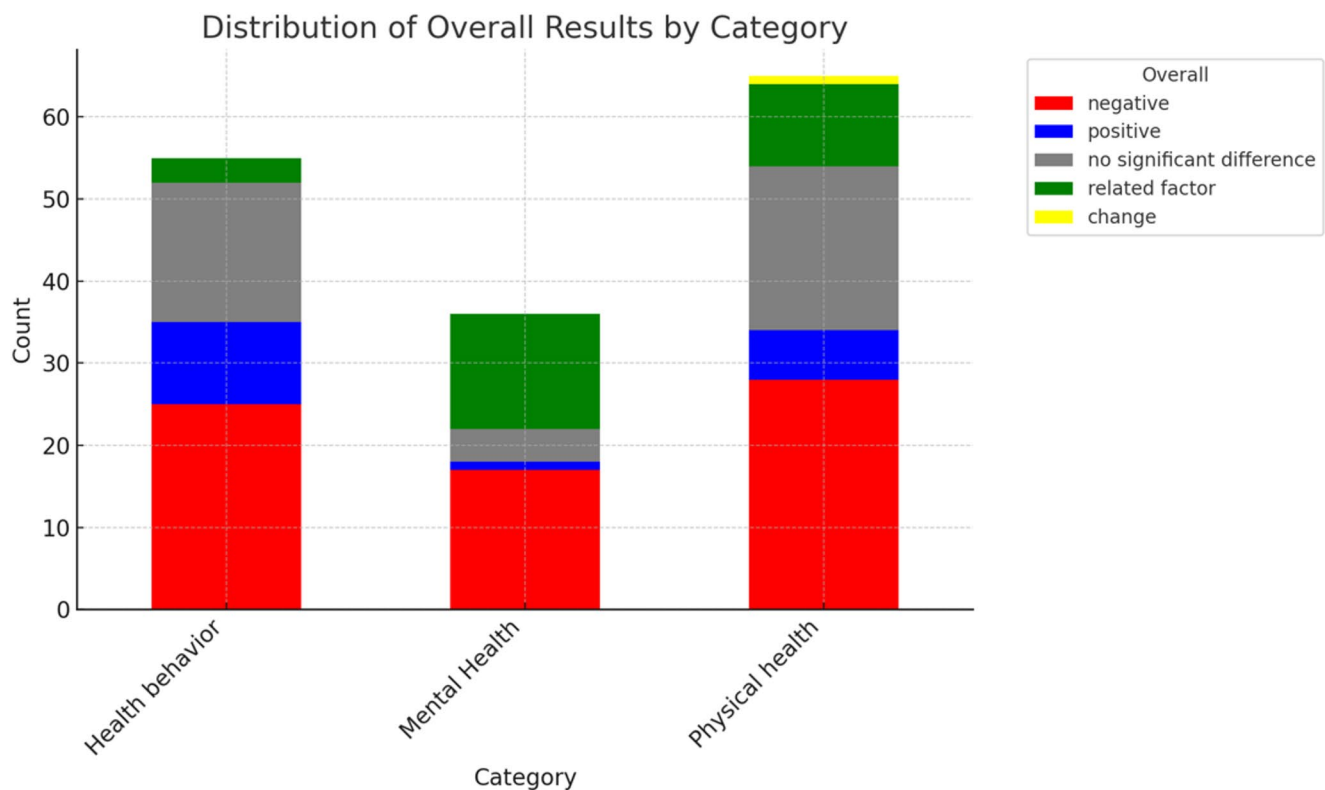


Fig. 2 Health status of MALAs

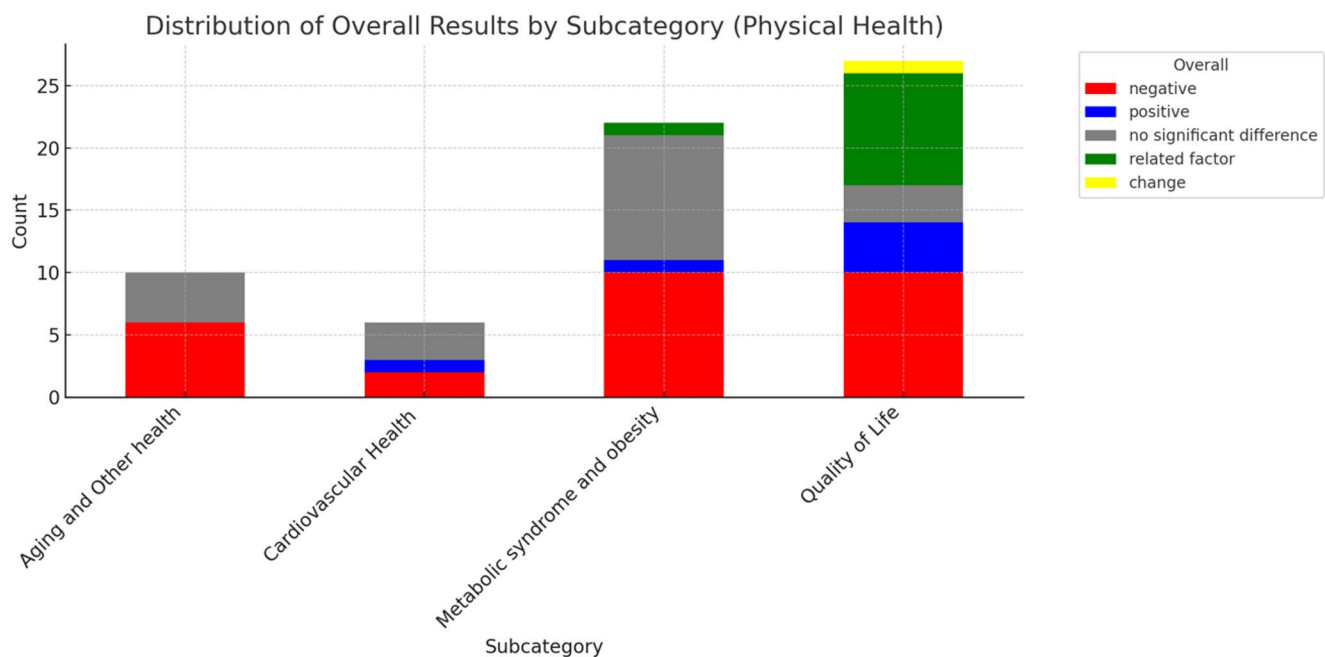


Fig. 3 Physical health status of MALAs

logistic regression models to analyze the proportion of individuals whose self-rated health as “poor” and reported odds ratios of 1.23 (95% CI 1.10–1.38) in 2008, 1.18 (95% CI

1.05–1.32) in 2012, and 1.20 (95% CI 1.08–1.32) in 2016 for single-person households.

One study [13] measured chronic disease as a variable and found no statistically significant differences between

household types. Another study [23] reported that compared to those in multi-person households, men living alone had worse outcomes for health-related quality of life as measured by EQ-5D ($p = .011$), whereas women had better outcomes ($p = .003$). Men showed no significant differences in subjective health status.

Three studies [15, 16, 20] focused on changes in quality of life, all of which reported a negative trend in the MALA population. Study 16 compared responses to a single self-rated health item between 1972 and 1974 and 2015–2018 and found a declining trend in the MALA population, whereas middle-aged individuals living in multi-person households showed either a stable or increasing trend. Study 28 compared 1997–1999 and 2015–2018 and found that living alone in midlife was increasingly associated with poor health and limitations in activities of daily living. In Study 20, as individuals increased in age from 35 to 65, the percentage who rated their health as “poor” or “fair” in response to a single item also increased.

Five studies [10, 12, 14, 17, 22] investigated the factors associated with quality of life among MALAs. The factors identified as influencing quality of life in this population were region ($p = .013$) [17], gender ($p < .01$) [10], age ($p < .001$) [12], alcohol consumption ($p < .05$) [10], occupation ($p < .01$) [10], subjective health status ($p < .001$) [10], depression ($p < .001$) [12], unmet medical needs [12], frequency of medical services [12], perceived social class [12], income [12, 22], obesity ($p < .05$) [12], marital experience ($p = .05$) [14], physical discomfort [22], and stress [22]. These factors reflect various sociodemographic, health, and psychological dimensions that affect the quality of life of MALAs.

Metabolic Syndrome and Obesity

The metabolic syndrome and obesity subcategory was derived based on the following variables: metabolic syndrome [18], hypertension [18, 21, 25, 26], diabetes [21, 25, 26], fasting blood sugar [27], dyslipidemia [25], triglycerides [27], hyperglycemia [18], hypertriglyceridemia [18], low HDL-cholesterol [18], abdominal obesity [18], and body mass index (BMI) [17, 18, 23, 26]. These variables reflect a wide range of metabolic health indicators that are critical for understanding the physical health outcomes of middle-aged individuals, particularly those living alone.

Seven studies [17, 18, 21, 23, 25–27] examined metabolic syndrome and obesity in the MALA population. One study reported that individuals living alone had worse outcomes for metabolic syndrome and obesity than those living in multi-person households. Study 18 found that hypertriglyceridemia ($p < .001$), hypertension ($p = .003$), and hyperglycemia ($p = .027$) were more prevalent among those living alone, whereas no significant differences were observed for

abdominal obesity, low HDL-cholesterol, or obesity. Two studies [21, 23] found no statistically significant differences in BMI, hypertension, or diabetes between individuals living alone and those living with others.

Two studies [25, 26] compared single-person households among middle-aged individuals and other age groups. Study 25 found that middle-aged individuals living alone had worse outcomes in terms of hypertension, diabetes, and dyslipidemia than young adults living alone. Study 26 compared BMIs between middle-aged individuals and older adults living alone and found no significant differences for men. However, among women, middle-aged individuals had a lower prevalence of overweight or obesity ($p = .004$).

Two studies [17, 26] examined the factors associated with metabolic syndrome and obesity in MALAs. Study 17 identified the region of residence as a statistically significant factor. Obesity rates were significantly higher for MALAs in urban areas than for those living in rural areas ($p < .001$). However, Study 26 found no statistically significant associations between the Korean Healthy Eating Index and the risk of diabetes, hypertension, or obesity.

Cardiovascular Health

The cardiovascular health subcategory was derived from variables such as risk factors for cardiovascular disease [28], waist-to-hip ratio [29], myocardial infarction (MI) incidence [30], and MI first-day fatality [30]. Three studies [28–30] compared cardiovascular health between MALAs and middle-aged individuals living in multi-person households.

Study 30 reported that middle-aged men living alone have worse outcomes than married men, especially in terms of MI incidence ($p = .093$) and MI first-day fatality ($p < .001$), whereas no significant differences were found for women. Study 29 reported a more favorable waist-to-hip ratio among MALAs than among married individuals ($p = .01$). However, Study 28 found no statistically significant differences in risk factors for cardiovascular disease between those living alone and married individuals.

Aging and Other Health Factors

Aging and other health factors were derived from the following variables: periodontal status [31]; hemoglobin [18]; mortality [32, 33]; adverse health events such as non-accidental falls, unplanned hospital admissions, and death [34]; risk of future fractures [35]; presbyopia [36]; and frailty measured by grip strength [37]. These variables reflect various aspects of aging and overall health concerns, focusing on physical decline, risk factors for injury, and long-term health outcomes among the MALA population.

Eight studies [18, 31–37] were included in this subcategory, all of which compared MALAs with individuals living in multi-person households. Five studies [18, 31, 32, 35] reported worse health outcomes for MALAs. These negative outcomes were observed for variables such as periodontal status, hemoglobin level, mortality, and risk of future fractures.

Two studies [36, 37] found no statistically significant differences in presbyopia and frailty (grip strength) between single- and multi-person households. In Study 33, mortality rates were worse for men living alone compared to their married counterparts in multi-person households; however, no significant differences were found for women.

Mental Health Status of MALAs

Coding and extracting mental health-related variables from the included studies revealed two subcategories: psychological distress and emotional well-being. Fifteen studies (34.1%) addressed psychological distress, while five studies (9.1%) focused on emotional well-being. Across all mental health subcategories, the reported health outcomes for MALAs were generally negative. In the emotional well-being subcategory, no studies reported positive health outcomes for this population (Fig. 4).

Psychological Distress

The psychological distress subcategory was derived from variables such as depression [9, 14, 17, 23, 31, 38–45], suicidal thoughts [46], and serious psychological distress [15].

These variables encompass various aspects of mental health challenges, reflecting the psychological burden experienced by the MALA population. This subcategory included 16 studies (36.4%) [9, 14, 15, 17, 21, 23, 31, 38–46], of which 12 [9, 15, 21, 23, 31, 40–45] focused on mental health. Among the seven studies [9, 15, 21, 23, 31, 44, 45] comparing mental health levels between MALAs and middle-aged individuals in multi-person households, five [9, 15, 31, 44, 45] reported that MALAs experienced more psychological distress ($p < .01$ [9]; $p = .024$ [44]; $p = .009$ [31]; $p = .003$ [45]). Study 21 reported no statistically significant findings. In Study 23, men living alone were found to have worse mental health ($p = .018$) than those in multi-person households, whereas the results for women were not statistically significant.

Studies 42 and 46 compared MALAs with other age groups of individuals living alone. Study 42 reported that MALAs had higher depression scores than young adults living alone but lower scores than older adults living alone ($p < .001$). Study 46 found that among single-person households, middle-aged individuals had a higher rate of suicidal thoughts than both older and young adults ($p = .001$).

In Study 40, which lacked a comparison group, the average depression score in the MALA population was reported to be 9.42 (using the Center for Epidemiologic Studies Depression-11 scores above 16 to indicate depression), with a suspected depression rate of 22.1%. Study 41 measured depression using the Patient Health Questionnaire-9 and found that 6.0% of MALAs had a score of 10 or higher, indicating depression.

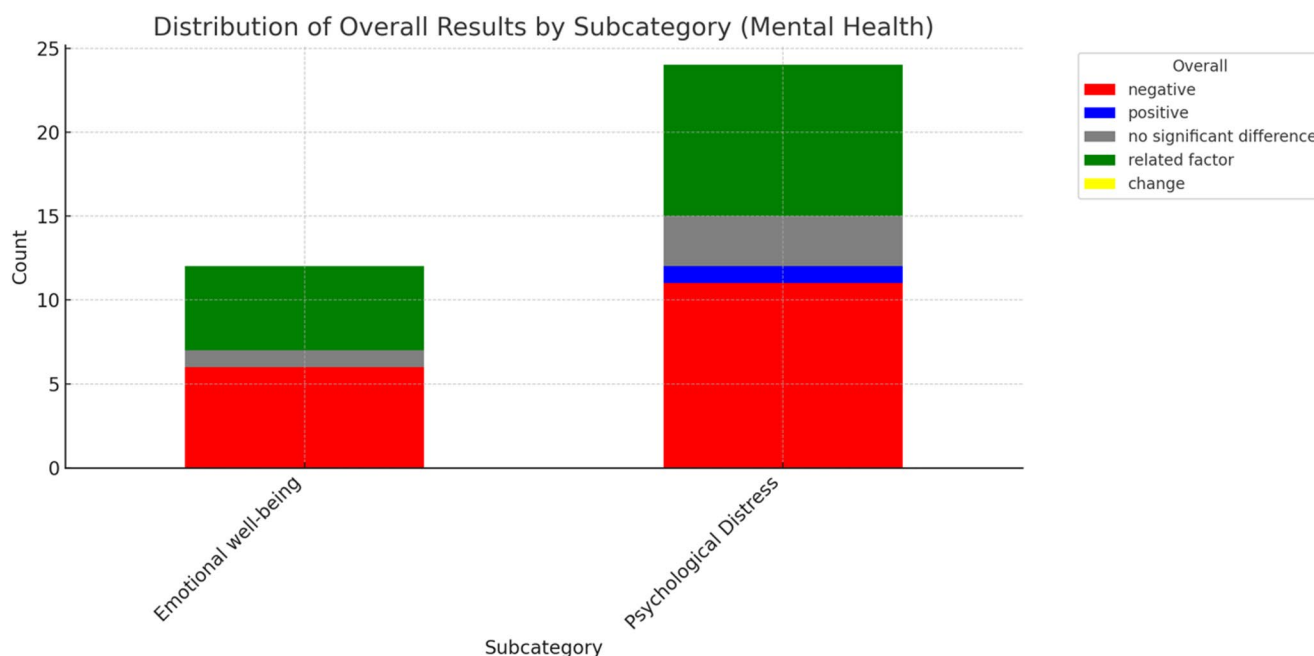


Fig. 4 Mental health status of MALAs

Study 38 compared changes in depression between MALAs and middle-aged individuals in multi-person households. The findings indicated that although depression was higher among those living alone, the gap between the groups decreased over time.

Eight studies [14, 17, 23, 39–41, 43, 46] investigated factors related to psychological distress in the MALA population, including self-esteem ($p < .001$) [39], family relationship satisfaction ($p < .05$) [39], social relationship satisfaction ($p < .01$) [39], subjective health status ($p < .001$) [40], dietary deprivation ($p = .001$) [40], housing deprivation ($p < .001$) [40], social deprivation ($p < .001$) [40], region of residence ($p < .001$) [40], and social isolation (adjusted odds ratios, male = 4.11, female = 3.49) [41]. Other reported factors included stress ($p = .001$ [46], $p = .001$ [43]), employment status ($p = .001$) [43], suicidal planning ($p = .025$) [43], mental health counseling ($p < .001$) [43], marital status for men ($p = .001$) [14], and eating habits ($p = .007$) [23]. These findings highlight a range of social, psychological, and health-related factors that contribute to psychological distress in the MALA population.

Emotional well-being

The emotional well-being subcategory was derived from variables such as loneliness [47–49], self-esteem [42], subjective sense of happiness [48], and life satisfaction [13, 19, 42]. These variables represent various aspects of emotional well-being, focusing on feelings of connection, self-worth, happiness, and overall satisfaction with life among middle-aged individuals, particularly those living alone.

Six studies [13, 19, 42, 47–49] reported findings on emotional well-being. Studies 47 and 48 found that loneliness was significantly higher among MALAs than among individuals living with their families ($p < .05$ [47]; $p < .01$ [48]). Similarly, Study 19, which examined life satisfaction, reported more negative outcomes in the MALA population.

Study 42 compared single-person households across different age groups and found that MALAs had lower self-esteem than both young and older adults living alone ($p < .001$), as well as lower life satisfaction than young adults living alone ($p < .001$). However, Study 19 also compared life satisfaction across different age groups among single-person households and found no statistically significant differences. These findings underscore the emotional challenges faced by the MALA population, particularly with respect to loneliness, self-esteem, and life satisfaction.

Five studies [13, 19, 42, 48, 49] focused on factors related to emotional well-being in the MALA population. Monthly household income ($p < .001$) [48], social class ($p < .05$) [48], and satisfaction with social relationships ($p < .001$) [48] were identified as key factors related to a subjective sense of

happiness. Furthermore, Study 49 found that frequency of family contact ($p < .05$) and satisfaction with family relationships ($p < .01$) were significant factors related to loneliness.

Three studies [13, 19, 42] reported factors related to life satisfaction in the MALA population, including gender ($p < .05$ [42], $p < .001$ [19]), depression ($p < .05$) [42], self-esteem ($p < .001$) [42], subjective health status ($p < .05$ [42], $p < .001$ [19]), age ($p < .01$) [19], household income ($p < .001$) [19], preparation for old age ($p < .001$) [19], education level ($p < .001$) [19], occupation ($p < .001$ [19], $p < .05$ [13]), participation in group activities ($p < .001$ [19], $p < .05$ [13]), social support ($p < .001$ [19]), social bonds ($p < .01$) [13], and marital status ($p < .05$) [13]. These findings highlight the multifaceted social, economic, and psychological dimensions that influence emotional well-being in the MALA population.

Health Behavior of MALAs

Coding and extracting health behavior variables from the included studies produced the following subcategories: drinking, smoking, physical activity, dietary habits and nutrient intake, stress perception, and healthcare utilization. Among these subcategories, most variables related to physical activity did not show statistically significant differences. In the stress perception subcategory, more variables were reported with positive outcomes than negative ones. However, in the subcategories of dietary habits and nutrient intake, smoking, drinking, and overall health behavior, more variables indicated negative outcomes for the MALA population, reflecting poorer health behaviors than the other groups (Fig. 5).

Drinking

The drinking subcategory was derived from variables such as drinking [9, 18, 21–23, 26], high-risk drinking [17], total alcohol consumption [29], and heavy alcohol consumption [50]. Nine studies (20.5%) [9, 17, 18, 21–23, 26, 29, 50] examined drinking behaviors in the MALA population. Among these, seven studies, excluding Study 17, reported the drinking levels of individuals living alone.

Two studies ($p < .001$ [18]; $p < .05$ [29]) found that MALAs had lower alcohol consumption levels than middle-aged individuals living in multi-person households. However, two other studies [21, 22] reported negative outcomes for individuals living alone, with Study 22 showing a significant difference ($p = .001$). Three other studies [9, 23, 50] reported no statistically significant differences.

Study 26 found that among single-person households, middle-aged individuals consumed more alcohol than older adults ($p < .001$). Regarding factors related to drinking

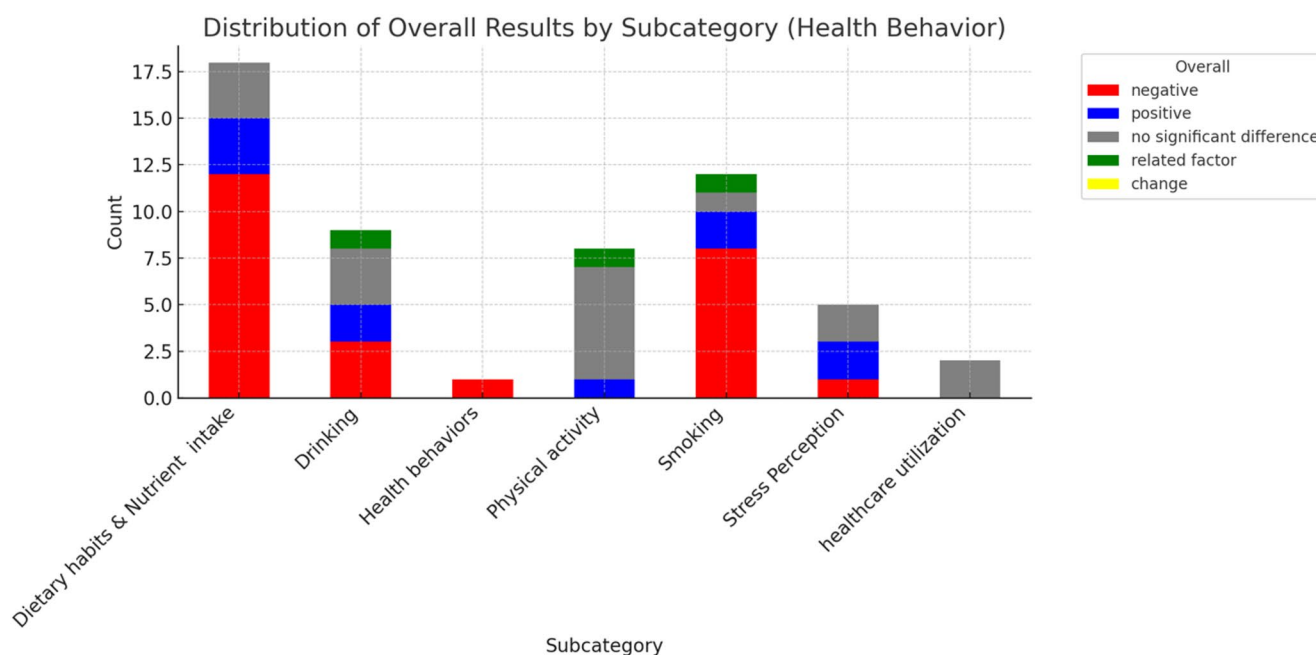


Fig. 5 Health behavior of MALAs

behavior, Study 17 reported that among the MALA population, those in rural areas had higher rates of high-risk drinking than their urban counterparts ($p < .001$).

Smoking

The smoking subcategory was derived from variables such as current smokers [9, 17, 18, 21–23, 26, 29, 51] and never smoked [50, 51]. This subcategory included ten studies (22.7%) [9, 17, 18, 21–23, 26, 29, 50, 51]. Among these, seven studies, excluding Study 17, reported smoking levels in the MALA population.

Six studies [18, 21–23, 29, 50] found that among middle-aged adults, smoking rates were higher in single-person households than in multi-person households ($p < .001$ [18]; $p < .001$ [23]; $p < .05$ [29]; $p < .001$ [22]). Study 51 reported that although the rate of current smokers among middle-aged adults was higher among single-person households than among those living with their families, the proportion of those who had never smoked was higher among those living alone. Study 9 did not find any statistically significant differences among the groups in terms of current smokers. Regarding smoking-related factors, Study 17 reported that MALAs in urban areas were more likely to be current smokers than those in rural areas ($p = .038$).

Physical Activity

The subcategory “physical activity” was derived from variables such as walking [17, 26], regular exercise [19],

physical activity [23], moderate-intensity physical activity [9, 17], and high-intensity physical activity [9]. This category included five studies [9, 17, 19, 23, 26].

Three studies [9, 19, 23] compared physical activity levels between MALAs and middle-aged individuals living in multi-person households, while one study [19] compared single-person households across age groups. None of these studies reported statistically significant differences in physical activity in the MALA population. However, Study 26 found that among single-person households, middle-aged women walked significantly more than older women ($p = .011$). This suggests that while broader comparisons do not show significant differences, specific subgroups, such as middle-aged women, may still show higher levels of certain activities, such as walking. Study 17 reported that the rural MALA population was more likely to walk regularly than their urban counterparts ($p = .044$). This finding highlights the influence of geographical location on physical activity levels among middle-aged individuals, suggesting that rural environments may encourage them to walk more frequently.

Dietary Habits and Nutrient Intake

The dietary habits and nutrient intake subcategory was derived from variables such as healthy eating index [23, 26], nutrient intake [18, 26, 52], skipping breakfast [18, 52], eating out [18], and food security [18]. This subcategory included four studies (9.1%) [18, 23, 26, 52].

Studies comparing MALAs with middle-aged individuals in multi-person households [18, 23, 52] reported

several negative outcomes for the MALA population. These included higher rates of skipping breakfast ($p < .001$ [18]; $p < .001$ [52]), poorer food security ($p < .001$) [18], and lower nutrient intake of phosphorus ($p = .025$) [18], vitamin A ($p < .001$) [18], carotene ($p < .001$) [18], niacin ($p = .001$ [18]; $p < .001$ [52]), thiamin ($p = .013$) [18], protein ($p < .05$) [52], dietary fiber ($p < .05$) [52], and potassium ($p < .05$) [52]. Furthermore, the Healthy Eating Index for middle-aged men living alone was significantly lower ($p < .001$ [23]).

However, no significant differences were found in nutrient intake in terms of the percentage of energy from carbohydrates or fat [52] or in the Healthy Eating Index for middle-aged women living alone [23]. Study 18 also reported that the rate of eating out less than once a month was the highest among the MALA population ($p = .032$).

Study 26 found gender differences between middle-aged and older adults in single-person households. Among men, middle-aged individuals had more positive outcomes for both the Healthy Eating Index ($p = .049$) and nutrient intake ($p = .039$) than older adults. However, for women, both the Healthy Eating Index ($p = .015$) and nutrient intake ($p = .023$) showed more negative outcomes in middle-aged individuals than in older adults.

Stress Perception

The stress perception subcategory was derived from variables such as stress perception [21–23] and work stress [29]. This subcategory included four studies [21–23, 29]. The results from these studies were inconsistent when comparing the MALA population with middle-aged individuals in multi-person households.

Study 29 reported more positive outcomes related to work stress for middle-aged individuals in single-person households than for those in multi-person households ($p < .05$). Similarly, Study 21 found positive outcomes for stress perception during certain periods (2008 and 2012). However, Study 22 reported negative outcomes for middle-aged individuals living alone ($p = .041$). No statistically significant differences in stress perception were found between those living alone and those in multi-person households in Study 23 or for 2016 in Study 21. These mixed findings suggest that stress perception in the MALA population can vary depending on the specific factors and periods considered.

Healthcare Utilization

The healthcare utilization subcategory was derived from variables such as cancer screening [17], influenza vaccination [21], and physical examination [21]. This subcategory included two studies [17, 21]. Study 21 found no statistically significant differences in healthcare utilization

between MALAs and middle-aged individuals in multi-person households.

However, Study 17, which analyzed factors related to healthcare utilization, found that MALAs in urban areas had higher rates of cancer screening than their rural counterparts ($p = .009$). This suggests that geographic location can influence healthcare behavior among the MALA population, with urban residents being more likely to engage in preventive healthcare measures such as cancer screening.

Discussion

This scoping review synthesized existing evidence on the health status of the MALA population, focusing on physical and mental health outcomes, as well as health-related behaviors. The growing body of research in this area reflects the increasing recognition of MALAs as a population that warrants concern from a public health perspective. Globally, the proportion of single-person households has risen steadily, and in several economically advanced countries, including the United States, Japan, Korea, Sweden, the Netherlands, Finland, and France, such households have accounted for more than one-third of all households over the past decade [53]. In particular, Korea has witnessed a rapid rise in MALAs alongside demographic shifts, urbanization, and cultural change, making it a focal point of recent research [53, 54]. As the proportion of individuals living alone in midlife continues to increase, so does the need to better understand their specific health challenges and related implications for community health.

Most of the studies included in this review had cross-sectional designs ($n = 40$, 90.9%), and no experimental or qualitative investigations specifically targeting MALAs were identified. While intervention and qualitative research has been widely conducted among middle-aged and older adults in general [55, 56], studies focusing on those living alone remain scarce. This gap indicates that the current understanding of the distinct health characteristics and needs of MALAs is insufficient, which may hinder the development of appropriate strategies to address health risks. Future research should incorporate qualitative approaches to capture lived experiences and contextual factors, as well as include intervention studies that examine effective health promotion strategies for this vulnerable population.

This review found that MALAs tend to experience poorer physical and mental health and engage in less favorable health behaviors, including higher rates of smoking and drinking, than their counterparts in multi-person households. Most of the included studies focused on physical health (65.9%), whereas less than half examined mental health outcomes (48%). Middle age is a transitional period marked

by physiological changes, career stagnation, and family role shifts such as an “empty nest,” all of which can compound vulnerabilities. For individuals living alone, the lack of strong social networks, heightened economic strain, and prolonged isolation increase the risk of adverse outcomes, including diminished quality of life and elevated all-cause mortality [57, 58]. Collectively, these findings underscore the significance of living alone in midlife as a public health issue for not only its association with unhealthy behaviors and chronic disease risk but also its broader psychosocial implications. Therefore, promoting healthier lifestyles and strengthening community resources during this life stage are critical strategies for preventing health deterioration in later life [59].

Quality of life, chronic conditions such as metabolic syndrome and obesity, and cardiovascular health were identified as major outcomes among the MALA population. Across these domains, individuals living alone consistently showed poorer results than those living with others. In particular, quality of life was one of the most frequently assessed outcomes and was found to be lower in MALAs, influenced by multiple sociodemographic, health, and psychological dimensions including obesity, diabetes, chronic disease burden, depression, poor subjective health, and elevated stress [57, 60, 61]. Metabolic syndrome and obesity were also more common in this group, and unhealthy dietary patterns, such as meal skipping, low nutrient intake [26], and related conditions including periodontal disease and anemia, were repeatedly reported. Furthermore, gender differences were apparent, with middle-aged men living alone demonstrating elevated risks of cardiovascular morbidity and mortality, particularly myocardial infarction, as confirmed by a prior meta-analysis [62]. These findings reinforce that living alone in midlife is not only associated with biomedical outcomes but also reflects broader health disparities shaped by social and behavioral determinants. Addressing these risks necessitates not only individual lifestyle modifications but also public health approaches that enhance access to nutrition, preventive care, and community-based support. From this perspective, the evidence summarized in this review provides a foundation for future longitudinal and intervention studies aimed at mitigating health disparities and strengthening community health among MALAs.

This scoping review found that MALAs generally report higher levels of depression, psychological distress, and suicidal ideation than adults living with others. These outcomes reflect the heightened likelihood of prolonged social isolation, loneliness, limited social support, and economic strain in middle-aged single-person households. Poor mental health compounds existing physical health problems, creating a cycle of declining overall well-being [57]. Prolonged loneliness has been linked to feelings of worthlessness,

despair, and diminished life satisfaction [6, 63], and such emotional burdens contribute to elevated mortality risks in this population beyond the effects of chronic physical illness [58, 64, 65]. These findings highlight the need to reframe midlife isolation as a public health priority, emphasizing the importance of interpersonal and community-level resources in mitigating poor mental health. Strengthening support systems through family networks, peer groups, community programs, counseling, visiting nurse services, volunteering, and online mental health resources may provide meaningful opportunities to reduce loneliness and improve the quality of life of this population [58, 66]. Moreover, public health initiatives that integrate formal services and informal social connections could play a critical role in addressing the psychosocial vulnerabilities of MALAs.

This review identified higher healthcare utilization rates among MALAs in urban areas than those in rural regions, reflecting disparities in access shaped by geographic location. Urban residents benefit from a denser concentration of healthcare facilities, including hospitals, clinics, and specialized care centers, as well as more convenient transportation and closer proximity to providers, collectively enhancing accessibility. In contrast, MALAs in rural areas often face a lack of practical and emotional support during periods of illness or stress, resulting in delayed care, poorer health outcomes, and greater financial burden [57]. Therefore, geographic location has emerged as a critical social determinant of health in MALAs. Addressing these inequities requires multilevel strategies, such as expanding healthcare workforce capacity, providing incentives for rural practitioners, improving transportation and facility infrastructure, and increasing the availability of telehealth and mobile health technologies [67, 68]. From a public health perspective, improving equity in health outcomes for MALAs will require the implementation of policies to reduce geographic barriers to care.

The growing MALA population, combined with increasing life expectancies worldwide, underscores the importance of addressing their health challenges as a priority in public health planning. The findings of this review provide critical insights for healthcare providers and policymakers, drawing attention to emerging trends and reinforcing the need for targeted community-based interventions to prevent health deterioration in midlife. Beyond documenting individual risk factors, this review contributes to a broader understanding of the health disparities associated with living alone, situating MALAs within the framework of the social determinants of health. These results offer a foundation for future research and policy development aimed at reducing inequities and improving long-term health outcomes in this group.

Limitations

This review had some limitations. First, several of the included studies were conducted in South Korea, which may have limited the external validity of the findings to other cultural or socioeconomic contexts. Health outcomes and social determinants relevant to the MALA population can vary widely across countries and regions, highlighting the need for caution when generalizing these results globally. Second, most of the reviewed studies used cross-sectional designs, limiting the ability to establish causal relationships between living alone and health outcomes. Future research should prioritize longitudinal designs to better capture the long-term health trajectories of this population. Finally, this review identified a notable lack of experimental or intervention-based studies, restricting the ability to assess the effectiveness of interventions aimed at improving health outcomes in the MALA population. Addressing this gap in future research could help identify the most effective strategies for supporting individuals in this demographic.

Conclusions

This review highlights the significant health challenges faced by MALAs, including poorer physical and mental outcomes and less favorable health behaviors compared to peers in multi-person households. The findings reveal a higher prevalence of adverse outcomes, such as obesity, metabolic syndrome, depression, loneliness, and decreased quality of life, among MALAs. Key determinants have emerged as pivotal factors shaping these disparities, particularly economic hardship, social isolation, and limited access to healthcare services.

Despite the worldwide growth of this demographic, research on MALA populations remains limited, particularly longitudinal and intervention-based studies. This gap underscores the importance of developing and implementing public health strategies tailored to their unique needs. More attention should be directed toward promoting healthier lifestyles, expanding access to healthcare resources, and strengthening social connections through community-based initiatives for this population to mitigate the adverse effects of living alone in midlife.

Future research should include in-depth qualitative and experimental studies to inform practical evidence-based interventions. Furthermore, policymakers and healthcare providers should collaborate to design and deliver integrated programs that address both the health and social needs of MALAs, thereby fostering resilience and improving outcomes for this population as they age.

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Data Availability All data generated and analyzed for the review are available upon request from the authors.

Declarations

Ethics Approval and Consent to Participate Not applicable.

Consent for Publication Not applicable.

Competing Interests The authors declare that they have no competing interests.

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