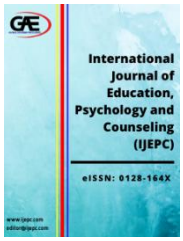
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COMMUNITY-BASED INTERVENTIONS TO IMPROVE HEALTH AND WELL-BEING AMONG OLDER ADULTS IN MALAYSIA: A SYSTEMATIC REVIEW

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Abstract:

Malaysia's rapidly ageing population has increased the need for accessible community-based strategies that address the multidimensional health and well-being needs of older adults beyond conventional clinical care. However, evidence on community-based interventions in Malaysia remains dispersed across physical, cognitive, nutritional, psychosocial, and technology-supported programmes, limiting understanding of their characteristics, outcomes, and potential for wider implementation. This systematic review synthesised evidence on community-based interventions designed to improve health and well-being among community-dwelling older adults in Malaysia. The review was reported with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement. Searches were conducted in Scopus and Web of Science using terms related to community-based interventions, health promotion, well-being, older adults, and Malaysia, supplemented by citation searching. Following screening, eligibility assessment, citation searching, and final refinement of the inclusion criteria, nine intervention studies were included in the qualitative synthesis. Three broad themes were identified: (1) targeted physical exercise and functional rehabilitation programmes (n = 3); (2) integrated multidomain and holistic lifestyle interventions (n = 4); and (3) digital health technologies and virtual delivery systems (n = 2). Across the included studies, favourable

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changes were reported in selected physical, cognitive, functional, behavioural, and psychosocial outcomes, although findings varied by study design, population, intervention, and outcome measure. Community-based interventions show promise for supporting healthy ageing in Malaysia, but the current evidence base remains small and heterogeneous. Larger multicentre studies, longer follow-up, greater consistency in outcome measurement, and stronger evaluation of sustainability, scalability, cost-effectiveness, and digital inclusion are required.

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Keyword:

Community-Based Interventions, Health Promotion, Older Adults, Malaysia Well-Being

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Introduction

Population ageing has increased the need to look beyond the treatment of individual diseases when considering the health of older adults. In community settings, common concerns include loss of physical function, nutritional problems, social isolation and loneliness, together with the effects of neighbourhood and social environments on day-to-day health. Malaysian research has examined several approaches to these issues, including structured exercise, nutrition education and programmes intended to strengthen social support or reduce loneliness. The aims of such programmes extend beyond physical outcomes to include psychological well-being, social connectedness and quality of life (Hooi et al., 2025; Hussein et al., 2024; Shahar et al., 2012; Tan & Kim, 2025).

The need to adapt programmes to local circumstances is apparent in several Malaysian studies. Shahar et al. (2012), for instance, developed a nutrition education package for older adults living in rural communities and emphasised the need for educational materials that were culturally and contextually appropriate. In Johor, qualitative work with community-dwelling older adults identified religious practice, meaningful use of time, contact with family and friends, and healthy lifestyle behaviours as ways of coping with loneliness (Hussein et al., 2024). These findings point to the way behavioural and social influences are intertwined with cultural factors in later-life well-being.

Participation in community activities, however, should not automatically be equated with better well-being. Among older adults attending group exercise programmes in Selangor, Hooi et al. (2025) examined perceived social support in relation to well-being, but the study could not establish that programme participation itself caused better outcomes. The effect of a programme may depend on what is delivered, how intensively it is delivered, how social

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interaction is structured, and whether older adults can access and use it. The wider environment may matter as well. Neighbourhood accessibility, safety and supportive physical and social surroundings have been associated with the health of older Malaysians (Tan & Kim, 2025).

Community-based intervention is therefore a broad category rather than a single model. Programmes may include physical activity, nutrition, psychosocial support, behavioural strategies, social participation or environmental components. Malaysian evidence has grown, but it remains spread across different intervention types and study designs. This review brings these studies together by examining the forms of intervention used, how they were delivered and the outcomes reported, while also considering whether Malaysian programmes are moving towards more integrated and technology-supported approaches to healthy ageing.

Literature Review

Community-based interventions have become increasingly relevant to healthy ageing because health in later life is shaped by more than physical illness alone. Cognitive function, nutrition, psychological well-being, social circumstances and the environment in which older adults live also matter. Delivering preventive and supportive activities through homes, neighbourhoods, activity centres and primary care networks allows some aspects of care to take place outside hospitals and specialist services. International studies report improvements in selected physical, psychological and social outcomes, although results differ according to the intervention, its duration, the population studied and the outcomes measured (Elhag et al., 2025; Giebel et al., 2022; Kim et al., 2024). Community-based intervention is therefore better understood as a way of delivering different types of programmes rather than as one standard intervention.

This question has particular relevance in Malaysia, where the population is ageing rapidly. Approximately 14% of Malaysians are projected to be aged 60 years or older by 2030 (Teh et al., 2023). Participation in activities associated with active ageing is uneven. Religious participation is relatively common, while participation in community organisations, voluntary work and regular exercise is lower. Teh et al. (2023) found that involvement in social, economic, religious and physical activities was associated with better self-rated health. Their findings were cross-sectional, however, and cannot establish that participation itself caused better health.

Physical inactivity remains an obvious target for community programmes. Among Malaysians aged 60 years and above, 29.8% were physically inactive, with higher inactivity among the oldest age groups and among people with functional limitations, diabetes and dementia (Chan et al., 2020). Frailty may also change over time. In a longitudinal study of rural community-dwelling older Malaysians, low physical activity was associated with a greater likelihood of worsening frailty and a lower probability of moving towards a less frail state (Ahmad et al., 2018). Physical activity is therefore relevant not only as general health behaviour but also as a factor associated with functional vulnerability in later life. The wider exercise literature gives some support to this interpretation. A systematic review and meta-analysis of community-based exercise among pre-frail older adults found improvements in lower-limb strength and physical function, together with a greater likelihood of moving from pre-frailty to robustness. Effects on other outcomes were less consistent (Lim et al., 2024). Exercise research in Malaysia has also grown, although studies differ considerably in methods and geographical setting (Felix, 2024). This raises a more useful question than whether exercise works in general: which type

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of programme is suitable for an older adult with a particular level of frailty, mobility, social support and readiness to participate?

Some newer Malaysian programmes have moved beyond exercise alone. These multidomain interventions recognise that cognitive decline, frailty, poor nutrition, vascular risk, inactivity and psychosocial difficulties often occur together. AGELESS, for example, combined physical activity, cognitive training, dietary counselling, psychological support and vascular risk management in community-dwelling older adults with cognitive frailty. The programme reported improvements in selected cognitive, physical, anthropometric and dietary outcomes. Its economic evaluation also found favourable cost-effectiveness for selected outcomes (Ponvel et al., 2025). The rationale is straightforward: when several determinants of ageing interact, addressing only one may be insufficient. WE-RISE offers a related example. During the COVID-19 Movement Control Order, participants who had previously completed the intervention showed higher physical activity, greater functional independence and more favourable psychosocial indicators than controls (Murukesu et al., 2021). This raises the possibility that some benefits of community programmes may persist beyond the intervention period and help older adults maintain healthier behaviours during disruption. The study design, however, does not allow strong causal conclusions about these longer-term effects.

Social participation forms another part of the picture. Malaysian studies have linked social engagement with well-being and self-rated health, but participation differs according to age, sex, education, place of residence and other sociodemographic factors (Abdullah et al., 2024; Teh et al., 2023). In rural Kelantan, community involvement was positively associated with mental health. Other Malaysian work has reported that social support and community participation are associated with later-life well-being through lower isolation and higher life satisfaction (Hossen et al., 2026; R Normala & Afiqah, 2025). The Malaysian Active Ageing Index also found higher well-being among older adults who provided weekly grandchild care or participated politically, while voluntary activity was the weakest participation domain and may require more active recruitment strategies (Abdullah et al., 2024). These associations make social participation relevant to programme design, but they do not show that participation alone improves health. Its value is likely to depend on whether older adults can access the activity, find it meaningful and continue participating over time.

Malaysia already has community settings that could support such programmes. Pusat Aktiviti Warga Emas (PAWE), or Senior Citizens Activity Centres, are intended to encourage participation and engagement among older adults. Among PAWE participants in the Klang Valley, healthier ageing was associated with better self-rated health and lower risks of depression and social isolation (Saidi Mohammad et al., 2026). The cross-sectional design means that PAWE participation cannot be identified as the cause of these outcomes. Even so, the findings show how existing community facilities could provide a setting for programmes that combine physical, psychological and social components. Not every intervention needs to be delivered in a centre. MyHOeME used personalised home-based activities addressing physical, cognitive and social aspects of ageing and reported improvement in health-related quality of life after the intervention (Dahlan et al., 2024). At the same time, this type of study exposes a recurring weakness in the Malaysian evidence base. Small samples and quasi-experimental designs provide less certainty about treatment effects than adequately powered controlled trials. Questions about long-term adherence, sustainability, cost and whether programmes can be transferred successfully to other settings remain open.

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The available literature therefore supports community-based intervention, but with clear qualifications. Exercise has the strongest evidence for physical and frailty-related outcomes, while multidomain programmes address a wider combination of cognitive, nutritional, vascular, psychological and functional needs. Social participation and existing community institutions may also provide useful settings for programme delivery. Malaysian research, however, remains scattered across exercise, frailty, multidomain care, occupational engagement, social participation and newer technology-supported approaches. A systematic synthesis is needed to determine how these programmes have been designed and delivered, what outcomes have been reported, and where the main gaps in implementation remain.

Research Questions

This review aimed to characterise community-based interventions designed to improve the health and well-being of community-dwelling older adults in Malaysia. The PICo framework (Population, Interest, and Context) described by Lockwood et al. (2015) was used because the review was exploratory and intended to map heterogeneous intervention characteristics and outcomes rather than estimate a single pooled treatment effect.

- RQ1. What community-based interventions have been designed and implemented to improve the health and well-being of community-dwelling older adults in Malaysia?
- RQ2. What are the principal characteristics, components, and modes of delivery of these interventions?
- RQ3. What physical, functional, cognitive, nutritional, psychological, social, and other health-related outcomes have been targeted and reported?

Materials and Methods

The review was reported with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement (Page et al., 2021). Scopus and Web of Science were used as the principal bibliographic databases. The review process comprised identification, screening, eligibility assessment, data extraction, methodological/reporting appraisal, and qualitative synthesis.

Eligibility Criteria

Studies were eligible when they: (1) involved community-dwelling adults aged 60 years or older, or a sample explicitly defined as an older-adult population; (2) were conducted in Malaysia; (3) evaluated a community-based intervention delivered outside institutional or acute inpatient settings; (4) reported empirical post-intervention findings; and (5) reported health, functional, cognitive, nutritional, psychological, social, behavioural, feasibility, or quality-of-life outcomes relevant to healthy ageing. Intervention protocols without outcome data were excluded from the final results synthesis. Studies conducted solely in institutional residential settings were also excluded because the review was restricted to community-dwelling older adults.

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Search Strategy

Searches were conducted in Scopus and Web of Science using combinations of terms describing community-based programmes and services, older adults, health promotion and well-being outcomes, and Malaysia. Search in both databases was conducted in July 2026. The Scopus search identified 82 records, and the Web of Science search identified 64, yielding 146 records before preliminary filtering and deduplication. The full database-specific search strategies are provided in supplementary Table S1. The original search strategy applied publication-type, publication-stage, and Gold Open Access restrictions. The Gold Open Access status was applied to allow access for full text.

Study Selection

After preliminary filtering, 73 records remained (Scopus, n = 38; Web of Science, n = 35). Sixteen duplicate records were removed, leaving 57 unique records for full-text eligibility assessment. Two authors independently screened the 57 eligible records, and disagreement resolved through cross-check by the third author. Fifty-two full-text records were excluded, and five database-derived studies remained eligible. Backward citation searching identified four additional potentially eligible records, resulting in inclusion of nine records for the final qualitative synthesis as illustrated in Figure 1. The citation-derived records were also screened using the same eligibility criteria.

Data Extraction and Qualitative Synthesis

Data was extracted by the two authors on programme name, study population, study design, intervention components, duration and frequency, primary outcomes, and key findings using a standardized excel table. A qualitative integrative synthesis was selected because the included studies differed substantially in design, participant characteristics, intervention content, duration, and outcome measures, precluding a meaningful single pooled effect estimate across the evidence base. Studies were compared according to intervention characteristics, target populations, delivery mechanisms, outcome domains, and reported findings. Preliminary categories were iteratively refined through thematic analysis and cross-study comparison. Because several interventions contained components spanning more than one domain, thematic categories were identified according to the predominant focus of each intervention.

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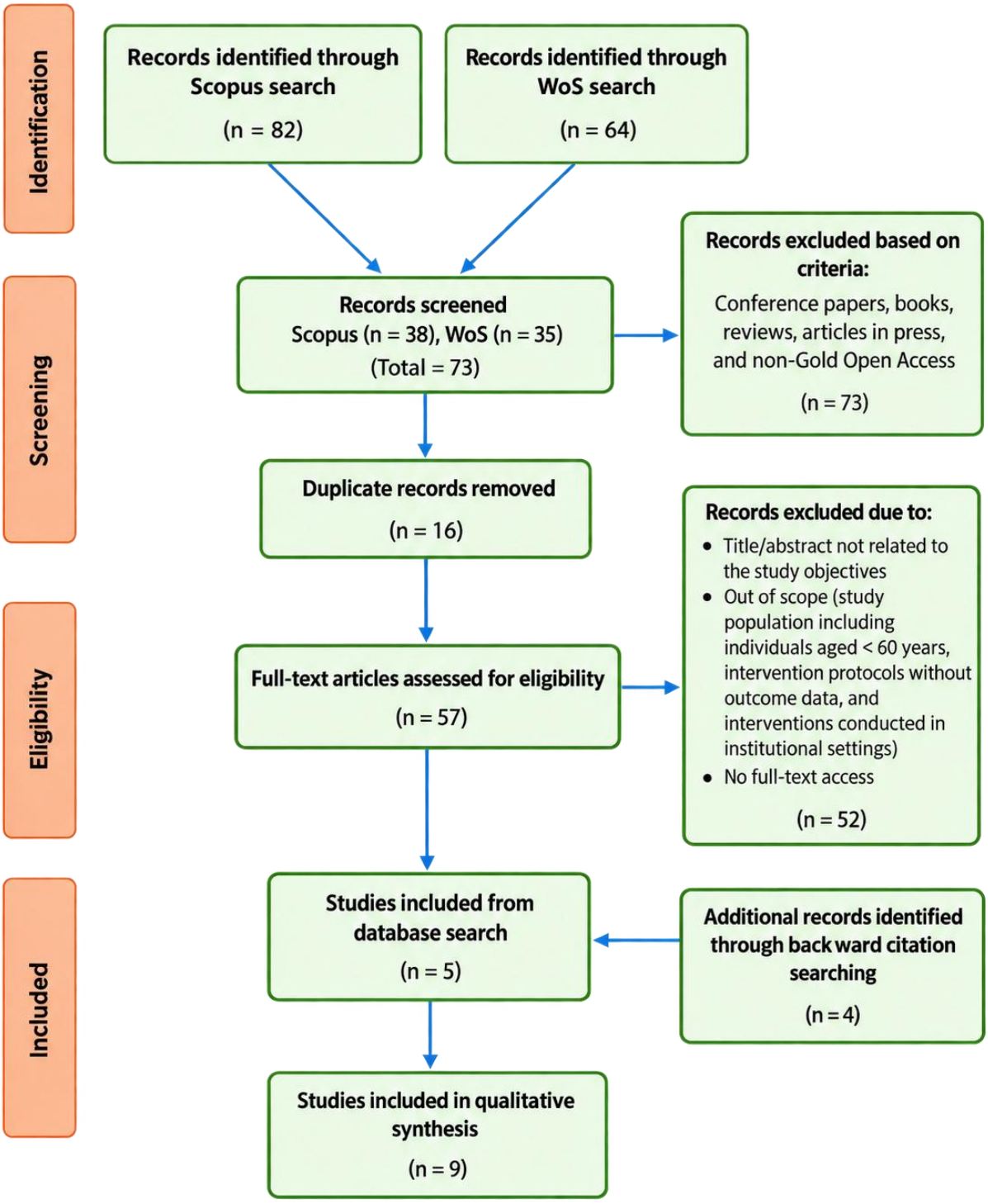


Figure 1: Flow Diagram of The Search Strategy

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Quality Assessment

The included studies were assessed using the six-item appraisal framework described by Abouzahra et al. (2020), following the approach cited by Kitchenham (2007). Each criterion was scored as Yes (1 point), Partly (0.5 points), or No (0 points). The six assessment criteria were: QA1, whether the purpose of the study was clearly stated; QA2, whether the relevance and usefulness of the work were clearly presented; QA3, whether the study methodology was clearly established; QA4, whether the concepts and components of the proposed approach were clearly defined; QA5, whether the study compared or evaluated its findings against similar work; and QA6, whether the limitations of the study were explicitly acknowledged. To strengthen the reliability of the assessment process, each included study was independently evaluated by three reviewers using the predefined QA criteria. The ratings assigned by the reviewers were subsequently consolidated to derive an overall quality score for each study. Studies were retained for the subsequent stage of the review only when their aggregated quality score exceeded 3.0. The application of this threshold was intended to exclude studies with substantial methodological weaknesses and to ensure that the final synthesis was based on evidence of acceptable methodological quality and reporting rigor.

All nine retained studies received a score of 6.0/6 on the selected six-item methodological/reporting checklist as presented in Table 1. These scores indicate that the studies met the reporting and descriptive criteria assessed by the checklist; they should not be interpreted as demonstrating uniformly low risk of bias or equivalent evidential strength. The nine-study evidence base still includes important variation in randomisation, control groups, sample size, feasibility status, and outcome measurement.

Table 1: Quality Assessment Summary

Record	QA1	QA2	QA3	QA4	QA5	QA6	Total Mark	Percentage (%)
Aniza et al. (2013)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Azizan et al. (2013)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Shahar et al. (2013)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Loh et al. (2015)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Noor et al. (2016)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Razaob et al. (2018)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Raja Adnan et al. (2021)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Murukesu et al. (2024)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Ing et al. (2024)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Ponvel et al. (2025)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100
Goh et al. (2025)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	6.0 / 6	100

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Results and Discussion

Characteristics of Included Studies

Nine empirical studies were included in the final qualitative synthesis. Table 2 summarises the principal characteristics of the included studies. The nine included studies varied in participant characteristics, study design, sample size, duration, and outcome assessment. Sample sizes ranged from 32 to 106 participants, with studies involving community-dwelling older adults as well as specific groups with pre-frailty, sarcopenia, cognitive frailty, or increased fall risk. Study settings included Kelantan, Selangor, Cheras, the Klang Valley, Kuching, and PAWE centres.

Methodologically, the studies included randomised controlled trials, cluster-randomised trials, controlled and single-group quasi-experimental studies, feasibility studies, and pre–post designs. Follow-up periods ranged from several weeks to 24 months. The main outcomes assessed included physical function, mobility, strength, balance, exercise adherence, self-efficacy, cognition, frailty status, body composition, quality of life, psychosocial outcomes, and fall-related measures. This variation reflects the methodological and clinical heterogeneity of the evidence base.

Table 2: Characteristics Of The Nine Included Studies

Programme Name	Population and design	Intervention	Main outcomes	Key findings
CFCS (Aniza et al., 2013)	56 community-dwelling adults ≥60 years; rural Kelantan; single-group pre–post	3 months; home exercise using chair/water bottles plus community/religious activities	Barthel Index, SPPB, social support	Functional ability and social support improved significantly; SPPB improvement was not statistically significant; 91.2% reported continued exercise.
Exercise + behavioural programme (Azizan et al., 2013)	63 community-dwelling adults ≥60 years; Selangor; controlled quasi-experimental, 3 groups	Exercise for 6 weeks; behavioural component for additional 5 weeks; follow-up to 24 weeks	Pedometer step count; exercise self-efficacy	Exercise plus behavioural support produced greater improvements in step count and exercise self-efficacy than exercise alone or control.
Warga Emas Sihat (Shahar et al., 2013)	65 Malay adults aged 60–74 with sarcopenia;	12 weeks; exercise, soy-protein supplementation	Body composition, functional fitness, oxidative stress,	Selected body-composition and functional outcomes

	Cheras; quasi-experimental, 4 groups	, combined treatment, or relaxation control	inflammatory/hormonal markers	improved, with effects differing across intervention groups; not all biomarkers changed significantly.
Community health empowerment (Noor et al, 2016)	36 community-dwelling older women; controlled pre–post with qualitative evaluation	10 weeks; physical, cognitive, affective, social, health/nutrition, and religious components	Memory/attention, religiosity, social engagement, anxiety/depression; interviews	Greater improvements in memory/attention and religiosity; qualitative feedback indicated increased knowledge, social bonding/support, and some healthier behaviours.
COME (Raja Adnan et al., 2021)	32 community-dwelling adults ≥60 years with pre-frailty; pilot single-group quasi-experimental	12 weeks; progressive three-phase strengthening	TUG, Berg Balance Scale, five-times sit-to-stand, handgrip	No outcome reached statistical significance; small favourable changes supported feasibility and the need for a larger controlled trial.
WE-RISE™ (Murukesu et al., 2024)	55 community-dwelling older adults of lower socioeconomic status with cognitive frailty; randomised controlled feasibility study	24 weeks; 12 weeks centre-based + 12 weeks home-based; exercise, cognitive stimulation, dietary counselling, psychosocial support	Cognitive frailty; cognition; endurance; strength; balance; body composition; disability; HRQoL; self-efficacy	74.1% no longer met cognitive-frailty criteria at 12 weeks and 63.0% maintained improvement at 24 weeks; multiple cognitive and physical outcomes improved.
WE-SURF™ (Ing et al., 2024)	52 community-dwelling adults ≥60 years at fall risk; Kuching; randomised controlled feasibility study	24 weeks; twice-weekly remotely supervised group exercise	TUG, 5STS, handgrip, single-leg stance, fear of falling, EQ-5D; feasibility	Significant intervention effects were reported for TUG, single-leg stance, and lower-limb performance; attendance exceeded 80%, with low dropout

				and no intervention-related adverse events.
AGELESS (Ponvel et al., 2025)	106 adults >60 years with pre-cognitive/cognitive frailty; Klang Valley; randomised controlled trial	24 months; physical activity, cognitive training, dietary and psychological counselling, vascular management	Modified neuropsychological battery; physical performance; dietary/anthropometric outcomes; economic outcomes	Selected cognitive and physical outcomes improved; favourable dietary/anthropometric changes and cost-effectiveness for selected outcomes were reported; 28.3% showed reversal of (pre-)cognitive frailty at 24 months.
FallSA© (Goh et al., 2025)	59 community-dwelling adults ≥60 years at increased fall risk from six PAWE centres; cluster RCT	6 months; fall-prevention education plus monthly app self-assessment, falls diary, and follow-up calls	Fall behaviour/knowledge, balance confidence, FallSA risk/TUG, SPPB, physical activity	No significant overall group-by-time effect for most principal outcomes; selected outcomes improved over time, with a significant interaction for the SPPB lower-limb-strength subscale.

Thematic Synthesis

Three broad themes were identified using thematic analysis (Table 3): (1) targeted physical exercise and functional rehabilitation programmes (n = 3); (2) integrated multidomain and holistic lifestyle interventions (n = 4); and (3) digital health technologies and virtual delivery systems (n = 2). These categories reflect the predominant intervention focus and are not mutually exclusive, because physical activity also forms a major component of several multidomain and digitally delivered programmes. Taken together, the evidence suggests an apparent broadening of Malaysian community-based healthy-ageing interventions from primarily physical and functional programmes towards multidomain models and, more recently, technology-supported delivery.

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Table 3: Thematic Synthesis

Theme	Primary emphasis	Included studies
Targeted physical exercise and functional rehabilitation	Mobility, functional capacity, strengthening, exercise adherence, self-efficacy	Aniza et al. (2013); Azizan et al. (2013); Raja Adnan et al. (2021)
Integrated multidomain and holistic lifestyle interventions	Physical activity integrated with nutrition, cognition, psychosocial support, behavioural or vascular components	Shahar et al. (2013); Noor et al. (2016); Murukesu et al. (2024); Ponvel et al. (2025)
Digital health technologies and virtual delivery	Remote supervision, mobile self-assessment, fall prevention, accessibility and continuity of care	Ing et al. (2024); Goh et al. (2025)

Targeted Physical Exercise and Functional Rehabilitation

Three studies evaluated structured physical activity for age-related functional decline, frailty and reduced participation in exercise (Aniza et al., 2013; Azizan et al., 2013; Raja Adnan et al., 2021). The programmes were delivered in community settings and ranged from simple home-based exercises to progressive strengthening and exercise combined with behavioural support. The interventions were generally designed around practical participation. Aniza et al. (2013) used chair- and bottle-based exercises that required little equipment and linked the programme with broader community and religious activities. Raja Adnan et al. (2021) used progressive strengthening, beginning with bodyweight exercises before introducing dumbbells and ankle weights. Azizan et al. (2013) combined structured exercise with behavioural strategies aimed at improving adherence and exercise self-efficacy.

Outcomes were mostly favourable, although the strength of evidence differed between studies. Aniza et al. (2013) found significant improvements in functional ability and social support, but the change in SPPB performance was not statistically significant. In the COME pilot programme, mobility, sit-to-stand performance and handgrip strength improved slightly, although these changes were not significant (Raja Adnan et al., 2021). Azizan et al. (2013) reported clearer behavioural effects: participants who received exercise together with behavioural support showed greater gains in step count and exercise self-efficacy than those receiving exercise alone or control conditions.

These studies support the practical use of simple, adaptable community exercise, particularly when programmes include measures that encourage continued participation. The evidence remains limited, however, because several studies involved small samples and non-randomised designs.

Integrated Multidomain and Holistic Lifestyle Interventions

Four studies addressed several aspects of healthy ageing within the same programme (Shahar et al., 2013; Noor et al., 2016; Murukesu et al., 2024; Ponvel et al., 2025). Physical activity was combined with cognitive, nutritional, psychosocial, behavioural or vascular components, depending on the intervention. WE-RISE™ and AGELESS focused on cognitive frailty. Both

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combined exercise with cognitive training, dietary intervention and psychosocial support, while AGELESS also incorporated vascular risk management (Murukesu et al., 2024; Ponvel et al., 2025). Noor et al. (2016) used a community empowerment programme that included physical, cognitive, emotional, social and religious elements for older women. Shahar et al. (2013) examined sarcopenia using exercise and protein supplementation.

WE-RISE™ reported one of the clearest changes among the multidomain programmes. After 12 weeks, 74.1% of participants in the intervention group no longer met the criteria for cognitive frailty. At 24 weeks, 63.0% maintained this improvement, compared with considerably smaller proportions in the control group. The study also reported improvements in selected cognitive and physical outcomes, disability, quality of life and exercise self-efficacy (Murukesu et al., 2024). AGELESS reported significant changes in selected cognitive and physical performance measures during 24 months of follow-up. Favourable dietary and anthropometric changes were also reported, together with cost-effectiveness for selected outcomes (Ponvel et al., 2025).

Other multidomain programmes produced more mixed patterns. Noor et al. (2016) reported improvements in memory and attention, religiosity, knowledge and social support. In the sarcopenia study, selected measures of body composition and physical function improved, but the pattern differed between the exercise, protein and combined intervention groups. No single intervention approach consistently produced the greatest benefit across all outcomes (Shahar et al., 2013).

Multidomain programmes may therefore be useful when several problems coexist, particularly physical, cognitive, nutritional and psychosocial difficulties. Direct comparison between programmes remains difficult because their designs, intensity and outcome measures differed substantially.

Digital Health Technologies and Virtual Delivery Systems

Two studies evaluated technology-supported community interventions: FallSA© and WE-SURF™ (Goh et al., 2025; Ing et al., 2024). The two programmes used technology for different purposes. FallSA© was a mobile programme for fall-risk assessment and prevention. It included self-assessment, educational materials, a falls diary, periodic reassessment and follow-up communication. WE-SURF™, by contrast, delivered group exercise through videoconferencing. Participants exercised under physiotherapist supervision, with demonstrations, messaging support and safety monitoring.

The outcome patterns also differed. WE-SURF™ produced significant intervention effects for mobility, single-leg balance and lower-limb performance. Attendance and programme completion were high, and no intervention-related adverse events were reported. FallSA© did not show significant group-by-time effects for most of its principal outcomes. Some measures nevertheless improved over time, including selected fall-related behaviours, balance confidence, fall-risk measures and physical function. A significant interaction was reported for the lower-limb-strength component of the SPPB. These findings show why digital interventions should not be interpreted as a single type of treatment. WE-SURF™ used technology to deliver an active, professionally supervised exercise programme. FallSA© used it mainly for assessment, education and self-management. The expected effects are therefore different.

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Digital delivery may be useful where travel or distance makes face-to-face participation difficult, while still allowing professional supervision or contact. Its usefulness will depend on whether older adults can access and use the required devices and internet connection, and whether the programme itself is easy and accessible enough to use.

Overall Synthesis and Implications

The nine included studies indicate that community-based healthy-ageing interventions in Malaysia have gradually expanded beyond programmes focused mainly on physical function. More recent work has incorporated multiple health domains and, in some cases, digital modes of delivery. Physical activity, however, remains a recurring component of many interventions. This could be due to physical inactivity, frailty and functional decline are common in older adult and potentially modifiable problems. This review brings together a relatively fragmented body of Malaysian evidence and groups the interventions into three broad domains. Several common considerations cut across these categories. Behavioural and social elements may help older adults remain engaged with programmes, while multidomain interventions may be useful when physical, cognitive, nutritional and psychosocial problems occur together. Technology-supported programmes may also improve access for some older adults, although their usefulness depends on factors such as usability, supervision, internet connectivity and digital inclusion. These programmes are best considered alongside formal clinical care rather than as substitutes for it. Their main role is to address modifiable risks and support healthier behaviours in the places where older adults live and participate in community life.

Future programmes therefore need to consider whether older adults can remain involved over time, whether activities are culturally and functionally appropriate, and whether delivery is feasible in routine community settings. Equity, long-term outcomes, cost and the possibility of extending successful programmes to larger populations also require closer examination. Development of shared-care model linking primary care services with existing community platform may be beneficial. Such models could enable identification of older adults with specific physical, cognitive, nutritional or psychosocial needs and connect them with appropriate community-based programmes, while maintaining clinical oversight when required.

Limitations

Several limitations should be considered when interpreting this review. The database search was restricted to Scopus and Web of Science, while the original search strategy also imposed publication-stage and Gold Open Access restrictions. Limiting inclusion by Open Access status may have introduced availability bias because potentially relevant studies could have been excluded because of their publishing model rather than their scientific relevance.

Several additional records were identified through citation searching. This makes clear reporting of the supplementary search process particularly important. The nine included studies also differed considerably in design, participant characteristics, intervention content, duration and outcome measurement. These differences made a pooled effect estimate across the full evidence base inappropriate.

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The six-item appraisal framework assessed the adequacy of methodological description and reporting rather than formal, design-specific risk of bias. A high checklist score should therefore not be taken to mean that a study necessarily had strong internal validity. Geographical coverage was another limitation. Much of the available research came from the Klang Valley and other parts of Peninsular Malaysia, while rural communities, lower-resource settings, socially isolated older adults and populations in parts of East Malaysia were less well represented.

Conclusion

This review identified nine empirical studies evaluating community-based interventions for community-dwelling older adults in Malaysia. The interventions addressed a range of concerns, including functional decline, frailty, sarcopenia, cognitive impairment, fall risk, exercise self-efficacy and difficulties accessing conventional services. Three broad intervention domains emerged from the evidence: targeted physical exercise and functional rehabilitation (n = 3), integrated multidomain and holistic lifestyle interventions (n = 4), and digital health technologies with virtual delivery (n = 2). These categories are not entirely separate. Taken together, they show how Malaysian community programmes have moved from a strong emphasis on physical function towards approaches that also address cognition, nutrition, psychosocial and behavioural factors, vascular health and, more recently, technology-assisted delivery.

For public health and community service planning, existing local settings may provide realistic places for programme delivery. Senior activity centres, community halls, religious facilities, neighbourhood organisations and primary care networks are possible examples. A single standardised programme, however, is unlikely to suit all older adults. Functional ability, frailty, cognition, socioeconomic circumstances, social support and access to digital technology vary considerably between individuals and communities. The evidence remains modest. Only nine studies met the inclusion criteria, and their interventions and outcome measures were highly heterogeneous. Several studies involved small samples or used feasibility, preliminary, quasi-experimental or uncontrolled designs. Long-term follow-up was uncommon, and study locations were unevenly distributed across Malaysia.

Further research needs larger multicentre studies with adequate statistical power, longer follow-up and more consistent outcome measurement. Clear reporting of how programmes are implemented would also make it easier to judge whether successful interventions can be reproduced elsewhere. Questions about sustainability, adherence, cost-effectiveness, workforce needs, cultural adaptation and integration with existing communities and primary care services remain unresolved. For digital programmes in particular, digital literacy, device availability, internet connectivity, usability and equitable access need to be considered from the outset.

Current Malaysian evidence therefore supports continued evaluation of community-based approaches to healthy ageing, but it does not yet establish their long-term effectiveness or suitability for national-scale implementation. The next question is not simply how many new programmes can be developed, but which models continue to work when they are delivered to larger and more diverse groups of older adults under routine community conditions.

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Appendix

Supplementary Table S1. Database Search Strategies

Database (Access date)	Search string
Scopus (09 July 2026)	TITLE-ABS-KEY(("community based intervention" OR "community based interventions" OR "community intervention" OR "community interventions" OR "community based program" OR "community based programs" OR "community based programme" OR "community based programmes" OR "community program" OR "community programs" OR "community programme" OR "community programmes" OR "community based care" OR "community care" OR "community health intervention" OR "community health interventions" OR "community health program" OR "community health programs" OR "community health programme" OR "community health programmes" OR "community health service" OR "community health services" OR "community based health service" OR "community based health services" OR "community based support" OR "community support" OR "home based intervention" OR "home based program" OR "home based programme" OR "senior centre" OR "senior center" OR "activity centre" OR "activity center") AND ("older adult" OR "older adults" OR "older person" OR "older persons" OR "older people" OR elderly OR aged OR senior OR seniors OR "senior citizen" OR "senior citizens" OR "older population" OR "ageing population" OR "aging population" OR geriatric OR geriatrics) AND ("health promotion" OR "health education" OR wellbeing OR "well-being" OR "well being" OR "quality of life" OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "physical function" OR mobility OR frailty OR cognition OR cognitive OR nutrition OR nutritional OR "mental health" OR psychosocial OR "social participation" OR "social engagement" OR falls OR exercise OR "physical activity" OR functional OR rehabilitation OR prevention) AND (Malaysia OR Malaysian)) AND (LIMIT-TO(DOCTYPE,"ar")) AND (LIMIT-TO(SRCTYPE,"j")) AND (LIMIT-TO(PUBSTAGE,"final")) AND (LIMIT-TO(OA,"publisherfullgold"))
Web of Science (09 July 2026)	("community based intervention" OR "community based interventions" OR "community intervention" OR "community interventions" OR "community based program" OR "community based programs" OR "community based programme" OR "community based programmes" OR "community program" OR "community programs" OR "community programme" OR "community programmes" OR "community based care" OR "community care" OR "community health intervention" OR "community health interventions" OR "community health program" OR "community health programs" OR "community health programme" OR "community health programmes" OR "community health service" OR "community health services" OR "community based health service" OR "community based health services" OR "community based support" OR "community support" OR "home based intervention" OR "home based program" OR "home based programme" OR "senior centre" OR "senior

	center" OR "activity centre" OR "activity center") AND ("older adult" OR "older adults" OR "older person" OR "older persons" OR "older people" OR elderly OR aged OR senior OR seniors OR "senior citizen" OR "senior citizens" OR "older population" OR "ageing population" OR "aging population" OR geriatric OR geriatrics) AND ("health promotion" OR "health education" OR wellbeing OR "well-being" OR "well being" OR "quality of life" OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "physical function" OR mobility OR frailty OR cognition OR cognitive OR nutrition OR nutritional OR "mental health" OR psychosocial OR "social participation" OR "social engagement" OR falls OR exercise OR "physical activity" OR functional OR rehabilitation OR prevention) AND (Malaysia OR Malaysian)