Functioning of Older Adults in Low and Middle Income Countries: A Literature Review

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ABSTRACT: The global population of older adults is rising, with the fastest surge in low and middle income countries (LMIC). Physical functioning determines independence in living. Therefore, it is critical to understand the functioning of older adults in LMIC. Extensive literature informs the functioning profile of older adults in developed nations; however, functioning of older adults in developing nations remains understudied. Physical functioning profile of older adults varies across the world due to differences in socio-demographic and economic factors alongside age-related physiological changes. The present study reviews the functioning profile, factors affecting physical functioning and health related quality of life (H-RQoL), and influence of physical co-morbidities on functioning of older adults in LMIC. Literature search was conducted in PubMed, Google Scholar, CINHAL, and Cochrane database. Eighteen cross-sectional, longitudinal, prospective cohort studies from Asia, Africa, North, South America, and Turkey were included. Most studies focused on singular domain of function. Hand-grip strength, lower extremity muscle strength, balance, and cognition were the most affected variables. Most older adults required partial assistance in bathing and housekeeping, and complete assistance in dressing. Individuals aged ≥ 75 years demonstrated greater limitation in activities of daily living (ADL). Older adults with cognitive impairment were at greater risk of functional decline. Low income, arthritis, and diabetes were major factors responsible for limitation in ADL and poor H-RQoL. Clinicians, researchers, and policymakers can use the present findings to plan culturally suitable rehabilitation programs to impart good health and well-being to older adults, which is central to the attainment of health-related sustainable development goals set forth by the United Nations.

KEY WORDS: functioning, geriatric, developing countries, low- and middle-income countries

ABBREVIATIONS: ADL, activities of daily living; **H-RQoL**, health related quality of life; **LMIC**, low-middle income countries

I. INTRODUCTION

Globally, the elderly population has increased rapidly over the last decades due to an increase in life expectancy. According to a World Health Organization report, there were 1 billion individuals 60 years and older in 2019. It is expected that the population of older adults will reach 1.4 billion by 2030 and 2.1 billion by 2050.[1]

By 2050, two-thirds of the world's population over 60 years will live in low- and middle-income countries.[1] The number of older adults in less developed countries will

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increase more than 250% from 2010 to 2050, compared to a 71% increase in developed countries.[1] Hence aging of the global population is the most important medical and social demographic issue today.

Aging is ultimately a combination of physiological changes and the effect of environmental factors on body systems. Hypertension, diabetes, arthritis (rheumatism and osteoarthritis), osteoporosis, stroke (cerebral embolism and thrombosis), chronic obstructive pulmonary disease, coronary artery disease, Alzheimer's disease, depression, dementia, cataract, and cancer are common conditions that affect many older adults.[2–5] Common conditions in older adults may lead to functional decline such as mobility limitation, restricted activities of daily living, impaired postural balance, and decline in muscle strength and flexibility.[6–8]

Age-related functional decline may lead to disability in some older adults. The burden imposed by disability in old age is one of the major challenges faced by healthcare systems worldwide not only in high-income countries (HICs) but also in low- and middle-income countries (LMICs). Literature reports that severe disability affects 8% of older adults in low and middle income countries. Being women, living in rural areas, being pre-frail or frail, and having sarcopenia or cognitive impairment were important socioeconomic and health factors associated with higher severity levels of disability.[9]

Apart from functional decline related to co-morbidities, normal aging results in an overall decline in physical, functional, and cognitive abilities. Integrated decline in function associated with normal aging process increases the likelihood of non-traumatic falls. Falls lead to mild-to-severe injuries such as bruises, internal injuries, sprains, grazes, cuts, fractures (hip fractures), traumatic brain injuries, upper limb and lower limb injuries, and are an underlying cause of emergency departmental visits.[10]

Besides physical factors, personal and environmental factors also negatively impact health-related quality of life of older adults. An increasing number of older adults live alone in both rural and urban areas due to urbanization, migration of young adult population, and the concept of the nuclear family. During the last decade, 36 million have moved from rural areas to urban areas in India.[11] According to a report by the United Nations, 18 million people from India live outside their homeland. The United Arab Emirates, United States of America, and Saudi Arabia host the largest number of migrants from India.[12] Older adults who live alone have difficulty complying with prescribed treatment regimens.[13] Poor compliance to treatment regimens can result in a low level of physical activity that can eventually lead to early functional decline. Maintaining optimal physical functioning of older adults is therefore crucial.

Additionally, low socioeconomic status and poor welfare systems are major factors responsible for lack of medical and financial support, deterioration of physical and mental health, and disability among older adults in low-middle income countries.[14]

The World Health Organization (WHO) highlights the role of function in healthy aging: "functional ability is about having the capabilities that enable all people to be and do what they have reason to value."[15]

Physical functioning in older adults can be described as a cumulative effect of medical conditions, lifestyle and age-related physiologic changes in the context of an

individual's environment.[15] Decline in physical functioning is a core determinant of health-related quality of life in old age, hence even a small decline in functioning is associated with increased mortality, need for caregiving assistance, and health-related expenditures.[16] Although physical function has become a common determinant for social, epidemiologic, and clinical research in high-income countries, it remains less explored in low and middle income countries.[17]

Current information on physical function and disability among older adults in low-middle income countries is very limited, though available evidence suggests older adults face a substantial burden of physical limitation in later life. Therefore, it is important to explore physical functioning of older adults from low and middle income countries because it is essential for sustainable development of the world including people of all age groups.[18] An exploration of physical function in older adults is crucial for understanding the level and profile of physical functioning, identification of most affected areas of physical functioning, and recommendations for rehabilitation and treatment strategies to support and maintain functional independence in older adults.

II. METHODOLOGY

A. Database Source and Search

A comprehensive electronic search was conducted through PubMed, Google Scholar, CINAHL, and Cochrane. Medical Subject Headings (MeSH) and text words including (functioning* OR functional impairment* OR functional limitation* OR functional decline* OR functional status* OR functional fitness* OR physical fitness* OR muscle strength* OR muscle flexibility* OR hand-grip strength* OR pinch grip* OR postural balance* OR coordination* OR cardio-respiratory endurance* OR Senior fitness test battery* OR agility* OR activities of daily living* OR instrumented activities of daily living* OR cognitive function* OR depression* OR quality of life*) AND (Older Adults* OR aged* OR elderly* OR older adults* OR geriatric* OR community-dwelling elderly individuals*) AND (low- and middle-income countries* OR developing countries*) were used. Papers describing original studies, available in English and conducted in the last 19 years were included (between 2003 and 2022).

B. Inclusion Criteria

Articles reporting assessment of functioning, profile of physical and cognitive function, and risk factors associated with functional decline in older adults from low- and middle-income countries in the title and abstract were screened for inclusion and 53 articles were identified. On further screening of 53 full-text articles for inclusion and exclusion criteria, 18 articles were finally included in the review. Study design, study setting, aims of study, number of participants, age group, method of assessment, outcomes of the study were noted from each article.

C. Exclusion Criteria

Articles reporting profile of functioning of individuals < 60 years from high income countries and not indexed in PubMed were excluded. Eighty-seven articles were retrieved from various databases, of which 53 articles were excluded after initial title and abstract screening. Finally, out of these 53 articles, only 18 articles fulfilling inclusion criteria were reviewed (Fig. 1). Quality of evidence was graded on the PEDro scale.

III. RESULTS

The present review was conducted to understand profile of functioning, factors determining functioning, influence of physical co-morbidities on functioning profile, and factors affecting H-RQoL of older adults in low- middle-income countries. Eighteen papers were included in the review, of which 15 cross-sectional articles from Asia, Africa, North and South America (China, India, Malaysia, Russia; Central and West Africa, Mexico and Brazil), one longitudinal study from South America (Brazil), and two prospective cohort studies from Turkey and Asia (India) were rated as Level IV evidence.

A. Characteristics of Included Studies

Articles included in the review reported findings on both males and females aged ≥ 60 years; with marital status single, married, divorced, or widowed; occupational status retired, pensioner, or housewife; education level illiterate, incomplete elementary, complete elementary, complete high school, or complete higher education; financial status completely dependent, partially dependent or independent and with or without co-morbidities.

B. Profile of Functioning

Profile of functioning was reviewed and described under two domains: body function and activity limitation.

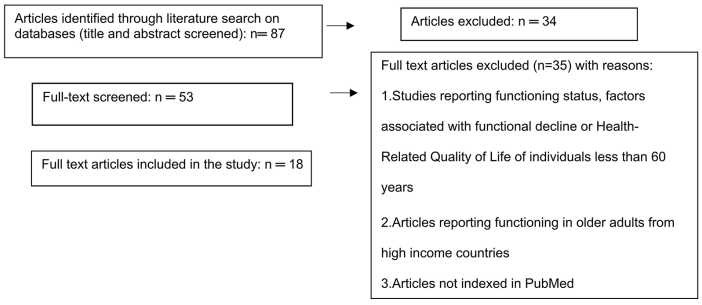

FIG. 1: Flowchart describing literature search strategy

1. Body Function

A prospective study was conducted to assess lower extremity muscle performance of individuals aged 65–95 years. Older adults demonstrated a slow walking velocity (65.51 ± 23.57 m/min), medium fall risk (Tinetti gait test score: 10.94 ± 1.71), and a low fall risk (Tinetti balance test score: 14.94 ± 2.05) during walking and balance activities, respectively. Older adults exhibited lower performance on both eccentric decline squat test (20.73 ± 13.47 repetitions/min) and half squat test (31.75 ± 15.6 repetitions/min).[19]

Association between hand-grip strength and gait speed with functional disability was explored in a cross-sectional study conducted on individuals ≥ 65 years from China, Mexico, Ghana, India, Russia, and South Africa. Hand-grip strength was assessed using hand-held dynamometer and gait speed was evaluated over a 4-meter flat surface. Gait speed of participants from Mexico, India, South Africa, Ghana and Russia was less than or equal to 0.8 m/s. Participants from Mexico had the lowest grip strength (21.6 kg), while South Africa exhibited the highest (36.0 kg) grip strength. Mean grip strength of participants from China, Ghana, India, and Russia was 25.5 kg, 25.8 kg, 22.1 kg, and 27.7 kg, respectively.[20]

Hand grip strength was also evaluated with Jamar Hand-held Dynamometer on 434 older adults from Pahang, Malaysia. Study results showed that males demonstrated significantly higher hand-grip strength (28.8 kg) than females (18.9 kg). On the other hand, when depressive symptoms were assessed using geriatric depression scale, females had higher geriatric depression score (GDS) (mean GDS score in females: 3.8, mean GDS score in males: 3.2). In males, as age and GDS score increased, hand-grip strength declined significantly.[21]

One thousand three hundred seventy-five (1,375) individuals aged ≥ 60 years were studied in São Paulo and Manaus, Brazil, to assess the prevalence of disability and identifying areas affected by disability. WHO Disability Assessment Schedule (WHODAS 2.0) questionnaire was used to assess the prevalence of global and severe disability. Prevalence of global disability was significantly higher in Manaus (66.2%) than in São Paulo (56.4%). Prevalence of disability was higher specifically in participants aged ≥ 80 years, with low level of schooling, low income, widow/living alone or divorced, White/Asian, ≥ 2 morbidities, depression, poor self-rated health, consulted family physicians in last 3 months, unhappy with support received from children or friends, and those who have not attended church in last one year. Participation and mobility were found to be most impaired domains of WHODAS 2.0, followed by cognition, life activities, self-care, and getting along. Females demonstrated more impairments than males in all WHODAS domains.[22]

Prevalence and correlates of functional limitation and physical disability were also examined in another study. Seven hundred sixty-five (765) older people aged ≥ 60 years were assessed using Barthel Index (10 items), Katz Index (6 items), 5-item scale (feeding, dressing, bathing, toileting, and transferring), Elderly Cognitive Assessment questionnaire, Geriatric Depression Scale (GDS-15 items), and Tinetti performance-oriented mobility assessment tool (TPOMA). In total, 10.4% older

adults exhibited borderline cognitive impairment, and 3.5% exhibited probable cognitive impairment. A total of 20.3% older adults exhibited depressive symptomology. Prevalence of functional limitation (gait and balance impairment-TPOMA) increased with advancing age (60–64 years: 6%, 65–69 years: 13%, 70–74 years: 24.5%, and 75 years and over: 48.3%). Overall, women had a higher prevalence of functional limitation (men: 14.5%, women: 22.3%), cognitive impairment (borderline cognitive impairment in men: 5.9% and women: 12.9%; probable cognitive impairment in men: 1.4% and women: 4.8%), and depressive symptomology (men: 24.2%, women: 22.7%) than men.[23]

2. Activity Limitation

Eight studies reported limitations in basic or instrumental activities of daily living. Pune-Functional Ability Assessment Tool (Pune-FAAT), Barthel Index, Lawton and Brody scale were used as assessment tools in these studies.

A cross-sectional study was conducted on 362 (≥ 65 years) older persons to assess social and functional status. A pre-designed and pre-tested interview technique was used to collect social and functional status information. In total, 7.5 % of older adults required partial assistance and 2% required total assistance in basic activities of daily living (BADL). The majority of older adults required assistance with dressing and getting in and out of bed (4.4%) followed by bathing (4.1%), toileting (3.1%), feeding (2.5%), and managing continence (2.2%), while one-fourth of the study population required partial or total assistance in instrumental activities of daily living (IADL). The amount of partial assistance needed in instrumental activities of daily living was as follows: higher percentage of older adults required assistance in housekeeping (15.7%) followed by cooking, using public toilets (10.5%), managing finances (8.6%), using telephones (8.3%), and shopping (4.7%). Difference in prevalence of activity limitation between men and women were not reported in this study.[24]

Similarly, another study reported data on prevalence of functional disability (defined as assistance required to execute at least one of the BADLs) in basic activities of daily living. Basic activities of daily living were evaluated using modified Barthel Index. Only 11.7% of the older adults were functionally independent, while the rest had functional disability. Among the functionally dependent individuals, 89.9% demonstrated minimal dependency, 9.2% mild dependency, 0.3% moderate dependency, and 0.6% total dependency. Performing personal hygiene, grooming, and transferring from bed to chair were most prevalent functional disabilities while bathing was least prevalent. Functional disability was higher in females than males.[25]

Older adults residing in urban area of Bagé-RS, Brazil required greater partial assistance in bathing (4.0%) and total assistance in dressing (7%) compared to other basic activities of daily living. Higher percentage of older adults could perform feeding independently (96.5%). Taking medicines (86.8%) was most independent activity with respect to instrumental activities. Housekeeping (11.6%) and telephone usage (11%) required greater amount of partial help than other instrumental activities.[26]

Prevalence of functional disability on 10-item basic activities of daily living scale among 495 older adults residing in a rural area of West Bengal, India was 16.6%. Amount of assistance required in each activity and most frequently affected activities of daily living were not specified by this study.[5]

A two-year follow-up study conducted in India demonstrated that ability to perform activities of daily living reduced over the years. Ability to perform squatting (55.5% to 44.3%), bending (59.1% to 48.4%), walking (62.5% to 54.9%), and climbing (56.8% to 46.3%) significantly declined with advancing age. Inability to perform at least one basic activity of daily living was 63% at baseline, which was elevated to 67.3% at follow-up. Nearly 73% of older adults at baseline and 73.6% at follow-up were unable to perform instrumental activities of daily living.[27]

Similarly, a four-year follow-up study conducted in Brazil, demonstrated that level of functioning in instrumental activities of daily living reduced over the years. Of the 24.2% older adults who were independent at baseline, their percentage dropped to 12.8% at follow-up, and the percentage of older adults in the partially dependent category dropped from 24.6% at baseline to 82.5% at follow-up. On the other hand, complete dependency percentage dropped from 41.2% at baseline to 4.7% at follow-up. Overall mean instrumental activity of daily living (IADL) score declined in both the genders from baseline to follow-up (men: mean IADL score: 16.02 ± 3.47 at baseline and 14.96 ± 3.88 at follow-up and women: mean IADL score: 18.26 ± 3.57 at baseline and 16.87 ± 4.05 at follow-up).[28]

Another study demonstrated that with advancing age both males and females needed help in at least one of the day-to-day activities on 10-item, 5-item, or 6-item scale, respectively. Overall, 24.7%, 14.3%, and 10.6% of older adults needed help in at least one of the day-to-day activities on 10-item, 5-item, or 6-item scale, respectively. Prevalence of activity limitation was greater in females than males in each age group.[15] Similarly, among older adults from rural Pahang, Malaysia, males (97.5 ± 7.0) demonstrated higher mean basic activity of daily living score than females (95.4 + 12.6).[21]

B. Factors Determining Functioning

Seven studies identified sociodemographic or socioeconomic or behavioral factors, or health status or extent of use of health services as determinants for activity limitation, decline in grip strength, and functional disability.

Age ≥ 75 years old, widower, low level of schooling, no alcohol consumption in the last 30 days, history of hospitalization in the past 12 months, receiving home care in the past 3 months,[26] female, and experience of memory loss and feeling of loneliness were factors associated with higher prevalence of limitation in basic activities of daily living.[27] Older adults satisfied with life had lower prevalence of limitation in basic activities of daily living.[26] Brown or indigenous or Asian older adults and former smokers had a higher prevalence of limitation in instrumental activities of daily living.[26]

A direct association was identified between nutritional status and instrumental activities of daily living. Malnourished older adults had higher limitation in instrumental activities of daily living.[29]

In males and females, body weight, height, activity of daily living score, and geriatric depression score were significant predictors for hand-grip strength. An increase in weight, height, and activity of daily living score was associated with an increase in hand-grip strength. Whereas, hand grip strength significantly declined in males and females with increase in geriatric depression score.[20]

A study conducted in the south of India evaluated timed gait at usual and fast pace over 10-m distance between older adults with dementia, mild cognitive impairment, and cognitively normal older adults. Older adults with dementia and mild cognitive impairment walked slower at their usual and fast pace over a 10-ft pathway compared to the cognitively normal older adults. A direct association between gait and cognition was identified.[30]

Global disability and severe disability are defined as having difficulty in executing at least one of the activities on 12 items on the World Health Organization Disability Assessment Schedule (WHODAS 2.0). Older adults who were current smokers were at a higher risk of global disability than non-smokers. Older adults with negative perception of health status were at a higher risk of severe disability.[22] Being male gender and having completed four years of schooling were two factors associated with a low risk of disability.[22]

Another study reported that older adults with impaired gait speed and grip-strength had higher prevalence of functional disability.[20]

C. Influence of Physical Co-Morbidities on Functioning

Four studies reported influence of physical co-morbidities on functioning.

A study conducted in Brazil on 405 individuals (mean age = 69.87 years) reported that cognitively impaired older adults were at a greater risk of functional decline, such as inability to use the telephone (OR = 3.01), and a higher risk of hospitalization (OR = 1.95). Similarly, frail older adults were at a higher risk of hospitalization (OR = 3.19).[28]

A cross-sectional study was conducted on individuals from six LMIC (Russia, Mexico, India, Ghana, South Africa, and China) to explore association between hand-grip strength and chronic physical conditions among middle-aged and older community dwellers. Individuals aged ≥ 65 years with > 2 co-morbidities, smokers, and people with depression exhibited weaker hand grip strength.[31]

Medical conditions such as osteoporosis (OR = 7.97), anemia (OR = 4.00), osteoarthritis (OR = 3.82), diabetes (OR = 3.53), and acid peptic disorder (OR = 3.15) were strongly associated with functional disability (limitation in daily activity). Age, gender, anemia, chronic obstructive pulmonary disease, scabies, hypertrophy of prostate, ischemic heart disease, osteoporosis, osteoarthritis, and acid peptic disorder were identified as risk factors of functional disability.[4] Similarly, another study reported that diabetes, stroke, depressive symptomology, and visual impairment were significantly associated

with physical disability (gait and balance impairment). Presence of arthritis and having depressive symptoms were significantly associated with activity limitation.[23]

D. Factors Affecting Health-Related Quality of Life (H-QOL)

A cross-sectional study conducted on 33,019 older adults in six low and middle income countries examined the factors influencing health-related quality of life (H-RQoL). Income, arthritis, and diabetes were three factors that affected H-RQoL of older adults in all six countries (China, Russia, Ghana, South Africa, Mexico, and India). Living environment and community support had a positive influence on H-RQoL across all countries except Ghana. Family support was positively associated with H-RQoL only in South Africa. Income, cognitive and physical function, and living environment were significantly associated with H-RQoL among male in all 6 countries. Diabetes or arthritis was negatively associated with quality of life among male older adults in China, Russia, and Ghana. Whereas, income, cognitive and physical function were significantly related to QoL among females in all six countries. Marital status as being married was positively associated with quality of life among female participants from all countries, except for Ghana, and diabetes or arthritis were negatively associated with QoL among female participants in all countries, except for Ghana.[32]

Similarly, a study conducted in rural Nepal reported the factors associated with high and low quality of life score (H-RQoL). Older adults aged < 75 years, residing in the urban areas, married ($p = 0.002$) employed, those who were literate, as well as those who were satisfied with the amount of time they spent with family members, perceived they were respected, and those who reported not to be abused verbally or physically by any family member demonstrated significantly higher H-RQoL scores. Older adults having any chronic physical health problems, those who were obese and had limited mobility demonstrated significantly lower H-RQoL score. Urban residence, employment status, absence of chronic physical health problems, and no depression were the four significant positive predictors of the H-RQoL in older adults.[33]

Musculoskeletal disorders, diabetes, low vision, hearing impairment, and impaired activity of daily living were significantly associated with physical domain of health-related quality of life. Only musculoskeletal disorders were associated with psychosocial domain, musculoskeletal disorders and low vision were associated with social relationship, and hearing impairment and impaired ADL were significantly associated with environmental domain of health-related quality of life. Factors such as advancement in age, no schooling, living alone/without spouse, nuclear family, musculoskeletal disorders, low vision, and impaired hearing were associated with low health-related quality of life score.[34]

IV. DISCUSSION

The present review describes the profile of functioning, determinants of functioning, influence of co-morbidities on functioning status, and factors affecting health-related quality of life of older adults in low and middle income countries.

Profile of functioning is described according to the domains of the WHO International Classification of Functioning, Disability and Health (ICF) model.

A. Profile of Functioning

1. Body Function

Lower-extremity muscle strength, hand-grip strength, balance, gait speed, and cognition were the most affected body function variables in individuals aged ≥ 60 years in low and middle income countries (LMIC).[19–23] Physiological changes that occur as part of natural aging process could be the source of affection of these body function variables. Older adults from high income countries (HIC) have reported decline in similar variables of body function. However, none of the studies from LMIC or HIC reported precise onset of decline in body function at a specific age group among older adults. Additionally, the magnitude of decline of body functions among older adults in LMIC with reference to HIC is not available. Variability in the use of functioning assessment tools in older adults across LMIC and HIC could account for the lack of information on the magnitude of decline in body functions.

2. Activity Limitation

Dressing, bathing, transfers, and housekeeping were the most affected activities of daily living.[24–26] Series of movements such as unipedal stance, good upper and lower-extremity muscle strength, flexibility and endurance, squatting, spinal flexion, extension, and side flexion movements are required to carry out these activities of daily living. Older adults may find it difficult to execute these series of movements with advancing age. Similar pattern of activity limitation was observed among older adults in a high-income country.[35]

3. Factors Determining Functioning

Body mass, body height, activity of daily living score, and geriatric depression score were significant predictors for hand-grip strength. An increase in body mass, body height, and activity of daily living score were associated with an increase in hand-grip strength. Whereas, increase in geriatric depression score was associated with decrease in hand-grip strength.[20] Lack of motivation to participate in daily living activities in a depressed older adult can be a reason for reduced hand-grip. In high income countries, hand-grip strength was negatively associated with instrumental activities of daily living.[36,37] Cognition had a positive association with gait.[30] Similar study findings were reported in older adults from a high-income country.[38] Being ≥ 75 years, widowers, low level of schooling, no alcohol consumption in the last 30 days, history of hospitalization in the past 12 months, receiving home care in the past 3 months, malnourished older adults, females, older adults with experience of memory loss, former smokers, brown or indigenous or Asian older adults,

extent of use of health services, and feeling of loneliness were factors associated with higher prevalence of limitation in activities of daily living.[26–29] Whereas, older adults satisfied with life had lower prevalence of limitation in activities of daily living.[26]

4. Influence of Physical Co-Morbidities on Functioning

Medical conditions such as osteoporosis, arthritis, anemia, osteoarthritis, diabetes and acid peptic disorder, chronic obstructive pulmonary disease, scabies, hypertrophy of prostate, ischemic heart disease, osteoporosis, stroke, and visual impairment were negatively associated with functional disability.[4,23] Co-morbidities have a major impact on cardiovascular, musculoskeletal, neurological, olfactory, and auditory systems, thus leading to negative influence on cardio-respiratory endurance, musculoskeletal strength, endurance and flexibility, postural balance, gait, vision, and hearing. Overall, co-morbidities lead to rapid decline in physical function of older adults, and eventually may lead to disability and lower health-related quality of life.

5. Factors Affecting Health-Related Quality of Life (H-RQOL)

Physical and cognitive function; environmental factors; marital, employment, and educational status; loneliness were major factors directly associated to health-related quality of life of older adults in low and middle income countries.[39]

Information on profile of physical functioning has been reported in different and singular domains by included studies. Hence, it is difficult to comment on comprehensive profile of physical functioning of older adults in LMIC. Therefore, further studies reporting comprehensive functioning profile of older adults from various low and middle income countries will enable exploration of association between functioning variables to understand interaction between domains because older adults present with multi-domain limitations in physical, psychological, and social health.

V. CONCLUSION

Hand-grip strength, lower extremity muscle strength, balance, cognition, and activities such as bathing, dressing and housekeeping were the most affected functioning variables in older adults.

Sociodemographic, socioeconomic, and behavioral factors; health status; and extent of use of health services were major factors responsible for functional decline in older adults. Older adults with arthritis and diabetes demonstrated greater limitation in basic activities of daily living. Chronic physical health problems, socio-economic, educational, employment status, and mild cognitive impairments were significant positive predictors of health-related quality of life in older adults.

The present information can be used by clinicians, researchers, and policymakers working in geriatrics to enhance care for older adults as well as to plan rehabilitation and treatment strategies to improve physical function.

A. LIMITATION

EMBASE database was not searched for pertinent literature.

B. CHALLENGES

1. A single model for comprehensive assessment of functioning of older adults is not available.
2. Hence none of the researchers have reported comprehensive functioning assessment based on a single model.
3. Thus mapping of the review results based on a single standardized model of functioning was not possible.

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