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Enhancing Community Musculoskeletal Health through an Integrated Physiotherapy Approach in Klitren Village

Hana Kristina*, Nathan Agwin Khenda, Yekhonya Arkananta Pramahesta, Therese Karunia Rosari, Hemas Mulyarinta Wibowo, Aura Diva Ariyanti, Viona, Maria Verga Clarista Silab, Gabriel Wildan, Benediktus Gerrard Satya Dewa, Daniel Valentino Rendra K

Department of Physiotherapy, STIKES Bethesda Yakkum, Yogyakarta, Indonesia

*Corresponding Author: hana@stikesbethesda.ac.id

Abstract
Musculoskeletal disorders and reduced physical function are common health problems that may affect individuals across different age groups and contribute to decreased independence and quality of life. This community-based program aimed to promote musculoskeletal health through integrated health screening, exercise training, and physiotherapy services in Klitren Village, Yogyakarta City, Indonesia. The program was conducted in April 2026 and involved 98 participants aged 12–78 years. The activities included health screening, musculoskeletal assessment, postural screening using the REEDCO method, exercise and stretching training, and physiotherapy intervention. Health screening identified elevated blood glucose levels in 25 participants (25.5%), elevated uric acid levels in 13 participants (13.3%), and elevated cholesterol levels in 8 participants (8.2%). Musculoskeletal assessment revealed shoulder pain (27 participants), back pain (22 participants), and knee pain (14 participants) as the most frequently reported complaints. Postural assessment was performed in 34 participants, identifying severe postural deviations in six individuals. Twenty-one participants received physiotherapy interventions consisting of manual therapy and therapeutic exercise. Program evaluation demonstrated a 98% satisfaction rate, while more than 90% of participants reported good understanding of the exercise program and willingness to continue exercising independently at home. This integrated community-based approach may facilitate early identification of health and musculoskeletal problems, improve exercise awareness, and support self-management strategies. Future programs should incorporate regular follow-up and long-term evaluation to assess the sustainability of exercise adherence and health outcomes.

Keywords: *musculoskeletal health, community-based program, exercise training, physiotherapy, health screening*

INTRODUCTION

Musculoskeletal disorders (MSDs) are among the leading causes of pain, disability, and reduced physical function worldwide. These conditions comprise more than 150 disorders affecting the locomotor system and are frequently characterized by persistent pain, impaired physical function, and limitations in daily activities. Back pain, neck pain, osteoarthritis, and other musculoskeletal conditions substantially contribute to disability across different age groups and represent a major threat to healthy ageing by reducing physical and functional capacity (Briggs et al., 2018). Approximately one in three people worldwide experience chronic musculoskeletal conditions, highlighting the importance of musculoskeletal health as an essential component of public health and functional independence (Briggs et al., 2018). Population ageing further increases the burden of musculoskeletal disorders. The World Health Organization (WHO) reported that the global population

aged 60 years and older will increase from 1 billion in 2020 to 1.4 billion by 2030 and is expected to reach 2.1 billion by 2050. Moreover, approximately two-thirds of older adults will reside in low- and middle-income countries. Ageing is associated with gradual declines in physical capacity and increased risks of chronic conditions, including back pain, neck pain, osteoarthritis, and functional limitations. The WHO also emphasizes that maintaining physical function and mobility is fundamental for healthy ageing and independent living (World Health Organization, 2025).

The increasing prevalence of chronic diseases, injuries, and ageing populations has generated a substantial unmet need for rehabilitation services worldwide. Rehabilitation aims to optimize functioning, reduce disability, and enable individuals to maintain independence, participate in society, and fulfill meaningful life roles. However, access to rehabilitation services remains limited in many regions, particularly in low- and middle-income countries (World Health Organization, 2017). Rehabilitation is considered an essential component of health services alongside prevention, health promotion, treatment, and palliative care and should be integrated into health systems to address population needs.

Physical inactivity and sedentary behavior further contribute to declining musculoskeletal health. The WHO guidelines on physical activity recommend that adults perform 150–300 minutes of moderate-intensity physical activity or 75–150 minutes of vigorous-intensity physical activity per week. Nevertheless, approximately 27.5% of adults and more than 80% of adolescents do not meet recommended levels of physical activity (Bull et al., 2020). Regular physical activity, muscle-strengthening activities, and reduction of sedentary behavior are recommended across all age groups because they contribute to better health outcomes and physical functioning (Bull et al., 2020).

Community-based approaches have been recommended to improve access to rehabilitation and promote functional independence. Community-based rehabilitation programs integrate health promotion, rehabilitation, education, and empowerment within local communities and may improve functioning, quality of life, and participation among individuals with physical disabilities (Iemmi et al., 2016). These programs emphasize community participation, local resources, and self-management strategies to support long-term health outcomes.

Preliminary observations conducted during activities at the elderly integrated health service post (Posyandu Lansia) in Klitren Village, Yogyakarta City, indicated that low back pain and knee complaints were frequently reported by community members. The community consists of individuals from various age groups, ranging from adolescents to older adults, with diverse occupational backgrounds. Despite these conditions, opportunities for musculoskeletal screening, exercise education, and physiotherapy services at the community level remain limited. Community-based health programs are considered important strategies to support healthy ageing and maintain functional ability among older populations (World Health Organization, 2021).

Therefore, a community-based musculoskeletal health program was implemented in Klitren Village, Yogyakarta City, Indonesia. The program integrated health screening, musculoskeletal assessment, exercise and stretching training, and physiotherapy intervention. This program aimed to improve community knowledge regarding musculoskeletal health, facilitate early identification of health and musculoskeletal problems, and enhance the ability of community members to perform independent exercises for maintaining physical function and musculoskeletal health.

METHOD

This community-based musculoskeletal health program was conducted in April 2026 in Klitren Village, Yogyakarta City, Indonesia. The program was organized through collaboration among physiotherapists, physiotherapy students, and community health volunteers from the Posbindu program. The activities were implemented as part of community health promotion and musculoskeletal health services.

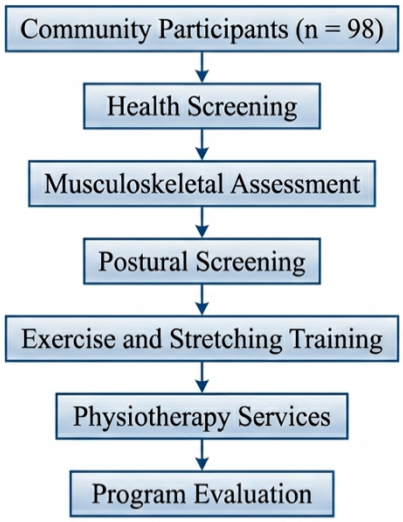


Figure 1. Program workflow

A total of 98 community members participated in the program. Participants represented various age groups, ranging from adolescents to older adults, with ages between 12 and 78 years and a mean age of 44 years. The participants included 32 males and 66 females. The community program was open to all residents regardless of occupation or health status. Older adults and community members attending Posbindu activities were particularly encouraged to participate because of the increased risk of musculoskeletal complaints and chronic health conditions. Participation in the program was voluntary. All participants received information regarding the objectives and procedures of the activities before participation. Written informed consent was obtained from all participants prior to the implementation of the program. For participants younger than 18 years, consent was obtained from their parents or guardians.

Health screening was performed as the initial stage of the program to identify potential health problems and risk factors among participants. Measurements included blood pressure, body weight, body height, blood glucose, cholesterol, and uric acid levels. Blood pressure was measured using a digital sphygmomanometer. Blood glucose, cholesterol, and uric acid levels were assessed using an EasyTouch portable device. Body weight and height were measured using digital anthropometric equipment. The screening process aimed to facilitate early identification of health conditions that may influence musculoskeletal health and physical function. Musculoskeletal assessment was conducted through interview-based screening to identify participants who experienced musculoskeletal complaints. The assessment focused on pain or discomfort in the neck, shoulders, back, upper extremities, lower extremities, and other body regions.



Figure 2. Musculoskeletal assessment

Participants who reported musculoskeletal complaints during the initial interview underwent further postural assessment using the REEDCO postural assessment method. The postural examination was performed to identify possible postural deviations that might contribute to musculoskeletal symptoms and functional limitations.



Figure 3. REEDCO postural assessment

Exercise and stretching training constituted the primary intervention of the community program. The training sessions were delivered through lectures, demonstrations, and supervised practice conducted by physiotherapists and physiotherapy students



Figure 4. Exercise and stretching training

The exercise program included stretching exercises for the neck, shoulders, upper extremities, and lower extremities. Participants received educational leaflets containing exercise instructions to facilitate independent practice at home. The training emphasized proper movement techniques, safety, and the importance of regular physical activity for maintaining musculoskeletal health. The training was delivered through a one-session workshop that included education, demonstration, and supervised exercise practice.

Participants who demonstrated significant musculoskeletal complaints or postural problems during screening received individual physiotherapy services. The intervention consisted of manual therapy and therapeutic exercise based on the participants' clinical presentations and functional limitations. Physiotherapy services aimed to reduce musculoskeletal discomfort, improve movement function, and provide individualized recommendations regarding exercise and self-management strategies. Participants requiring further evaluation or follow-up care were advised to seek additional physiotherapy services as needed.

RESULTS AND DISCUSSION

A total of 98 community members participated in the musculoskeletal health program conducted in Klitren Village, Yogyakarta City. The participants consisted of 32 males (32.7%) and 66 females (67.3%), with ages ranging from 12 to 78 years and a mean age of 44 years. Among the participants, 19 were adolescents and 18 were older adults. The participation of individuals from

different age groups indicates that musculoskeletal health problems may affect people throughout the life course. Musculoskeletal conditions contribute substantially to disability and reduced physical function across different age groups. Briggs et al. (2018) reported that musculoskeletal disorders are among the leading causes of pain, disability, and reduced functional capacity worldwide. These conditions may affect mobility, work productivity, and independence, particularly among adults and older individuals.

Table 1. Characteristics of Participants

Characteristics	n	%
Sex		
Male	32	32.7
Female	66	67.3
Age Categories		
Adolescents (12–19 years)	19	19.4
Adults (20–59 years)	61	62.2
Older adults (≥60 years)	18	18.4
Program Participation		
Musculoskeletal screening	98	100
Postural assessment (REEDCO)	34	34.7
Physiotherapy intervention	21	21.4
Age Characteristics		
Mean age (years)	44.0	—
Minimum age (years)	12	—
Maximum age (years)	78	—

Health screening identified several participants with metabolic risk factors. Elevated blood glucose levels were identified in 25 participants (25.5%), elevated uric acid levels in 13 participants (13.3%), and elevated cholesterol levels in 8 participants (8.2%). The identification of these health conditions is important because metabolic disorders may contribute to decreased physical function and increased health risks. The World Health Organization emphasizes that maintaining physical capacity and functional ability is essential for healthy ageing and independent living (World Health Organization, 2025). Community-based screening programs may facilitate early detection and encourage timely health interventions.

Table 2. Health Screening Findings

Variable	Abnormal n (%)	Normal n (%)
Blood glucose	25 (25.5)	73 (74.5)
Uric acid	13 (13.3)	85 (86.7)
Cholesterol	8 (8.2)	90 (91.8)

Interview-based musculoskeletal screening revealed that shoulder pain was the most frequently reported complaint, affecting 27 participants. Back pain was reported by 22 participants, while knee pain was identified in 14 participants. Several participants experienced pain in multiple body regions simultaneously. Back pain, shoulder pain, and knee pain are common complaints in community populations and may be associated with aging, occupational activities, and reduced physical activity. Musculoskeletal disorders commonly affect physical function and quality of life and are considered a major contributor to disability worldwide (Briggs et al., 2018).

Table 3. Health Screening Findings

Complaint	Number of participants
Shoulder pain	27
Back pain	22
Knee pain	14

Postural assessment using the REEDCO method was performed in 34 participants who reported musculoskeletal complaints during the screening process. Severe postural deviations were identified in six participants, whereas the remaining participants demonstrated mild postural deviations or normal postural alignment.

Table 4. Postural Assessment Findings

Variable	Number of participants
Participants assessed using REEDCO	34
Severe postural deviation	6
Normal posture	28

Twenty-one participants received physiotherapy services following screening and assessment. The interventions consisted of manual therapy and therapeutic exercises according to the participants' complaints and functional limitations. Community-based physiotherapy services may improve access to rehabilitation and support self-management strategies. Rehabilitation services have become increasingly important because musculoskeletal disorders significantly contribute to functional decline and disability, particularly in low- and middle-income countries (World Health Organization, 2017). The WHO guidelines emphasize the importance of regular physical activity across the life course to maintain health and physical function (World Health Organization, 2020).

Program evaluation demonstrated high participant satisfaction, with an overall satisfaction rate of 98%, indicating excellent acceptance of the program. More than 90% of participants reported good understanding of the exercise and stretching program and expressed willingness to continue the exercises independently at home. The favorable response may be associated with the integrated delivery of health screening, musculoskeletal assessment, exercise training, and physiotherapy services within the community setting. The WHO physical activity guidelines emphasize the importance of regular physical activity across the life course to maintain physical function and overall health (Bull et al., 2020). In addition, exercise-based interventions may facilitate self-management, strengthen community engagement, and support the adoption of long-term healthy behaviors.

CONCLUSION

The community-based musculoskeletal health program conducted in Klitren Village successfully integrated health screening, musculoskeletal assessment, exercise and stretching training, and physiotherapy services within a community setting. The program involved participants from various age groups and facilitated the early identification of metabolic risk factors, musculoskeletal complaints, and postural deviations among community members. Shoulder pain, back pain, and knee pain were the most frequently reported musculoskeletal complaints. Health screening also identified several participants with elevated blood glucose, cholesterol, and uric acid levels, highlighting the importance of community-based screening for early detection of health problems. Postural assessment and physiotherapy services further supported the identification and management of musculoskeletal conditions requiring individualized care. The high level of participant satisfaction and the positive evaluation of the exercise program indicate that the integration of health screening, exercise education, and physiotherapy services was well accepted by the community. More than 90% of participants demonstrated good understanding of the exercise program and expressed willingness to continue performing the exercises independently at home. Community-based musculoskeletal health programs may serve as a feasible strategy to promote health, support self-management, and encourage healthy behaviors across different age groups. Future community programs are recommended to incorporate regular follow-up activities, objective outcome measurements, and long-term evaluation to assess the sustainability of exercise adherence and the impact of such interventions on musculoskeletal health and physical function.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors states that there is no conflict of interest in the publication of this article.

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