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Integrated Exercise, Nutrition, and Health Monitoring to Improve Quality of Life in Elderly: A Community-Based Program in Gianyar, Bali

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ABSTRACT

Elderly individuals commonly experience interconnected health issues such as diminished sleep quality, decreased independence, and heightened fall risk—conditions frequently linked to metabolic dysregulation and sedentary lifestyles. This community service program was implemented in Abianbase Village, Gianyar, to promote elderly well-being through a combination of weekly physical exercise, monthly nutritional education, and routine health monitoring. A total of 150 elderly residents participated in the program's initial phase, which included group exercise sessions, interactive health education, and clinical screening of blood pressure, glucose, and uric acid levels. Baseline health data revealed prevalent hypertension and impaired glucose regulation, emphasizing the importance of accessible community-based preventive services. The enthusiastic participation and positive engagement indicated strong community acceptance. This integrated model demonstrates a practical and sustainable approach to enhancing elderly health and may serve as a reference for similar programs in other community settings.

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INTRODUCTION

Elderly populations face a range of chronic health challenges affecting their functional ability, independence, and overall quality of life. Sleep disturbances, decreased mobility, and fall risk are frequently reported among older adults, and these conditions are often interconnected through shared metabolic and physiological pathways (Takeuchi & Kawashima, 2023). Poor sleep quality, for instance, has been associated with impaired glycemic control and increased fatigue, while reduced independence commonly results from age-related declines in muscle strength, balance, and mobility (Drewnowski & Evans, 2001; Riyanto et al., 2021). Fall risk remains a major concern, contributing significantly to morbidity and decreased quality of life among older adults (Adnyaswari et al., 2025; Sherrington et al., 2019).

Quality of life (QoL) among older individuals encompasses physical health, independence, emotional well-being, and social engagement. Improving QoL, therefore, requires a holistic approach that targets multiple determinants simultaneously.

Preliminary discussions with health cadres and Puskesmas staff in Abianbase Village revealed that elderly residents experience persistent health issues and limited access to structured health education or regular monitoring. These findings highlighted the need for a sustained, community-based program to address gaps in elderly wellness support.

The present program was therefore developed not as a research study, but as a community service initiative designed to provide accessible health services for the elderly through an integrated model of exercise, nutrition education, and health monitoring.

METHODS

The community service program was carried out using a participatory, community-engaged approach involving physiotherapists, village leaders, health cadres, and elderly residents. Coordination meetings were held with the Village Office and Puskesmas to establish schedules, prepare the exercise venue, and arrange health monitoring equipment such as tensiometers, glucometers, and weighing scales. Participation was voluntary and open to all elderly residents without strict inclusion criteria, consistent with the principles of community service.

Weekly physical exercise sessions were facilitated by physiotherapists and lasted approximately 45 minutes. These sessions included warm-up routines, balance training, lower-limb strengthening, mobility exercises, and cool-down stretches. Regular movement and balance-oriented exercises are known to reduce fall risk and improve functional mobility in elderly populations (Sherrington et al., 2019).

Monthly nutritional education sessions provided interactive learning using posters, leaflets, and discussions. Topics included reducing sugar and salt intake, understanding balanced food portions, hydration practices, and improving meal timing to support metabolic health and sleep quality (Akter et al., 2025). Cadres were encouraged to reinforce key messages during daily interactions with elderly residents.

Monthly health monitoring included blood pressure measurement, random blood glucose testing, body weight and height measurement for BMI calculation, and uric acid testing. Local cadres assisted in data recording and ensuring participant safety during screenings. Early detection of blood pressure or

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glucose abnormalities is essential for prompting appropriate preventive actions among elderly individuals (Yunita et al., 2019).

The involvement of health cadres ensured sustainability and follow-up beyond the program sessions. Cadres assisted participants during exercises, explained educational materials in local dialects, and helped monitor changes in daily habits, supporting continuous health empowerment (Devi et al., 2021; Sunde et al., 2020).

Program documentation included attendance records, summaries of health screening results, and observational notes from physiotherapists and cadres. These descriptive records informed subsequent adjustments to session content, such as emphasizing sugar reduction when glucose levels remained high among participants.

Safety precautions were implemented throughout the sessions. Physiotherapists conducted quick condition checks before exercise to identify participants needing modified movements. Exercises were scaled according to participants' functional abilities, minimizing risk of fatigue or injury.

Program evaluation was descriptive, focusing on participation levels, health awareness, and identification of community health needs. No pre and post–analysis or hypothesis testing was performed, as the program emphasized service delivery rather than research evaluation.

RESULT AND DISCUSSION

The first phase of the community service program took place on August 24, 2025, at the Balai Banjar in Abianbase and was attended by 150 elderly individuals. Activities began with a group exercise session, followed by health education on nutrition and fall prevention, and concluded with routine health screening. The descriptive findings from the 150 participants are presented in Table 1.

TABLE 1. Descriptive Statistics of Participants' Baseline Clinical Data (n = 150)

Variable	Mean	Standard Deviation	Minimum	Maximum
Age (years)	70.3	4.9	63	81
Systolic Blood Pressure (mmHg)	141.8	8.9	128	162
Diastolic Blood Pressure (mmHg)	85.2	4.8	76	97
Blood Glucose (mg/dL)	124.5	16.7	98	172
Uric Acid (mg/dL)	6.0	0.7	4.5	7.8

The baseline health data indicate a high prevalence of elevated blood pressure and glucose levels among participants. These conditions are consistent with common metabolic risks associated with aging and may contribute to poor sleep quality, reduced independence, and increased fall risk (Borzouei et al., 2024; Hussain et al., 2025).

The strong enthusiasm and high participation reflect the community's acceptance of accessible health programs. These findings underscore the importance of providing structured and regular physical activity for older adults, as exercise plays a significant role in improving balance, mobility, and muscular strength (Sherrington et al., 2019).

Nutritional education further supported elderly empowerment by increasing awareness of dietary choices that influence metabolic stability and functional capacity. Effective dietary management is closely linked to improved sleep patterns and day-to-day functional independence among elderly

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individuals (Akter et al., 2025; Devi et al., 2021; Sunde et al., 2020).

Routine health monitoring provided valuable feedback for both participants and program facilitators. It enabled immediate counseling for individuals with abnormal results and helped identify the most common health risks within the community, which is essential for tailoring future educational topics (Sunde et al., 2020; Yunita et al., 2019).

Because this activity is a community service initiative rather than a research study, no claims of effectiveness or statistical comparisons were made. Observed outcomes such as increased awareness and participant engagement are interpreted as indicators of community responsiveness rather than research findings.

A limitation of this phase is that the data represent descriptive snapshots rather than systematic evaluations. Nonetheless, this baseline information provides practical guidance for designing subsequent phases of community-based elderly support

CONCLUSION

This community service program successfully delivered integrated health support to elderly residents in Abianbase Village through structured exercise, nutritional education, and routine health monitoring. The program enhanced awareness of metabolic and cardiovascular risks and promoted healthier behaviors within the community. While the program does not aim to scientifically measure intervention outcomes, the strong participation and positive reception demonstrate that integrated elderly health services are both practical and impactful in community settings. This model may be replicated or adapted by other villages seeking to strengthen elderly health and quality of life.

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