

Management of a Community Nursing-Based Healthy Workplace Program for Enhancing the Productivity and Well-Being of Elderly Workers

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Vol 5(1),55-69

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<https://doi.org/10.54639/kks.v5i1.1957>

Article Information

Submitted: 23-01-2026;

Revised: 03-03-2026;

Accepted: 27-03-2026;

Published: 30-03-2026;

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Citation Information (APA Style)

Mas'um, C. C., Rismanudin, Kaharuddin, S. A. N., Anto, A., Rahamitu, G. S. P. P., Dewi, A. Y. I., & Hasrib, A. H. (2026). Management of a community nursing-based healthy workplace program for enhancing the productivity and well-being of elderly workers. *Karya Kesehatan Siwalima*, 5(1), 55–69. <https://doi.org/10.54639/kks.v5i1.1957>



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E-ISSN: 2828-8181

P-ISSN: 2828-8408

Publisher

Lembaga Penerbitan Fakultas Kesehatan,
Universitas Kristen Indonesia Maluku
<https://ojs.ukim.ac.id/index.php/KKS/index>

Abstract

The increasing participation of older adults in the workforce has emphasized the need for workplace health programs that support productivity and well-being. Elderly workers often experience age-related challenges, including chronic diseases, fatigue, and psychosocial problems that may affect their work performance and quality of life. This study aimed to develop and evaluate a community nursing-based Healthy Workplace program for elderly workers in South Sulawesi, Indonesia. A Research and Development (R&D) approach was applied through needs assessment, program design, validation, implementation, and evaluation stages. Data were collected using interviews, observations, questionnaires, focus group discussions, and document reviews. The program included occupational health education, ergonomic counseling, psychosocial support, physical activity promotion, and regular health monitoring. The findings showed improvements in occupational health knowledge, workplace safety practices, productivity, and physical and psychological well-being among participants. Collaboration among community nurses, employers, workers, and local health services also strengthened program sustainability. The Healthy Workplace program offers a practical strategy to promote healthy aging and improve the quality of life of elderly workers.

Keywords: elderly workers; community nursing; healthy workplace; productivity; well-being

Introduction

The increasing participation of older adults in the workforce has become an important occupational health issue worldwide (Sohidin, 2025). In Indonesia, many older individuals remain economically active due to financial demands, family responsibilities, and increased life expectancy (Rahayuwati et al., 2024). However, ageing workers are more vulnerable to chronic diseases, physical decline, fatigue, psychological stress, and reduced work capacity, which may negatively affect both individual well-being and organizational productivity (Poscia et al., 2019). These challenges highlight the need for workplace health interventions that are specifically tailored to the needs of older workers.

The Healthy Workplace approach, promoted by the World Health Organization, emphasizes the creation of work environments that support employees' physical, psychological, and social well-being (Magnavita, 2018). Previous studies have demonstrated that workplace health promotion, ergonomic interventions, health education, and psychosocial support can improve work ability, reduce fatigue, and enhance quality of life among ageing workers

(Söderbacka et al., 2020). Nevertheless, many existing workplace health programmes remain focused on curative services and have not adequately incorporated community-based preventive and empowerment strategies (Bentley et al., 2023). This limitation reduces the sustainability and effectiveness of occupational health programmes for older employees.

In Indonesia, occupational health management for elderly workers remains fragmented and insufficiently integrated, particularly in community-based work settings (Adi, 2024; Asiamah et al., 2025)). Existing initiatives are often limited to periodic health screening and workplace safety education without structured follow-up, community participation, or comprehensive evaluation mechanisms (Windani & Sari, 2024). Consequently, many older workers continue to experience preventable health problems, reduced productivity, and limited access to continuous occupational health support (Lützerath et al., 2024). This situation indicates a significant gap between the growing needs of ageing workers and the availability of comprehensive workplace health programmes.

Integrating Healthy Workplace principles with community nursing approaches offers a promising strategy to address these challenges through health promotion, occupational health management, and community empowerment (Söderbacka et al., 2020). Community nurses can play essential roles as educators, facilitators, advocates, and programme coordinators while fostering collaboration among workers, employers, healthcare providers, and community stakeholders (Vanderstichelen et al., 2024). Therefore, this study aims to develop and evaluate a community nursing-based Healthy Workplace management model for older workers using a Research and Development approach. The findings are expected to contribute to the advancement of occupational health nursing and provide an evidence-based framework for sustainable workplace health management for ageing workers in Indonesia.

Method

This study employed a Research and Development (R&D) approach to develop and evaluate a Healthy Workplace programme based on

community nursing principles aimed at improving the well-being and productivity of older workers. The R&D approach was selected because it provides a systematic process for identifying occupational health problems, designing intervention strategies, validating programme components, conducting pilot and field testing, and refining the programme based on feedback from participants and stakeholders. According to Borg and Gall, R&D is appropriate for developing practical models or products that can be tested and implemented in real-world settings. The research procedures were adapted from the Borg and Gall framework, which includes needs assessment, programme design, prototype development, expert validation, pilot testing, programme revision, field implementation, and final evaluation.

The study was conducted in community-based workplace settings involving older workers in South Sulawesi, Indonesia, from January to June 2026. Prior to programme implementation, preliminary observations and in-depth interviews were conducted to identify occupational health issues experienced by older

workers. The assessment revealed several key concerns, including work-related fatigue, declining physical capacity, limited occupational health knowledge, inadequate ergonomic facilities, and insufficient workplace health promotion activities. These findings highlighted the need for a comprehensive, participatory, and sustainable workplace health management programme tailored to the needs of older workers.

The study population consisted of adults aged 60 years and older who remained actively engaged in occupational activities. Participants were recruited using purposive sampling based on predefined inclusion criteria. Eligible participants had been employed for at least one year, were willing to participate in the study, and possessed sufficient physical and cognitive capacity to complete the research procedures. Workplace supervisors and community health workers were also included to support programme implementation and evaluation.

Data were collected through observations, semi-structured interviews, questionnaires, focus group discussions (FGDs), and document reviews. Observations were conducted to

assess workplace conditions, employee activities, and occupational health practices. Semi-structured interviews explored participants' experiences, perceived health challenges, and perspectives regarding workplace health programmes. Questionnaires were administered before and after the intervention to measure changes in productivity, health-related behaviours, job satisfaction, and well-being. FGDs were conducted to gather feedback and recommendations from older workers, community nurses, and workplace managers regarding the feasibility and effectiveness of the programme.

The research instruments included observation checklists, interview guides, and structured questionnaires developed based on community nursing and occupational health indicators. Content validity was established through expert review involving specialists in occupational health, community nursing, and research methodology. The instruments were subsequently revised according to expert recommendations to ensure clarity, relevance, and accuracy. Internal consistency reliability was assessed using Cronbach's alpha, with a coefficient of 0.70 or higher considered acceptable.

The Healthy Workplace programme comprised occupational health education, ergonomic training, physical activity promotion, routine health assessments, psychosocial support, and workplace environmental evaluations. Throughout programme implementation, community nurses served as educators, facilitators, coordinators, and advocates. The programme also promoted collaboration among older workers, workplace supervisors, healthcare providers, and community representatives to strengthen sustainability and community empowerment.

Quantitative and qualitative approaches were used for data analysis. Quantitative data obtained from questionnaires were analysed using descriptive and inferential statistics. Descriptive statistics included frequencies, percentages, means, and standard deviations, whereas paired-sample t-tests were performed to examine differences in productivity and well-being before and after programme implementation. Qualitative data derived from interviews and FGDs were analysed using thematic analysis to identify key themes related to participant

experiences, programme implementation, and perceived benefits.

Community participation and empowerment were integrated throughout all stages of programme development. Older workers were actively involved in identifying workplace health issues, contributing to intervention planning, evaluating programme implementation, and providing recommendations for future improvements. This participatory approach was intended to enhance programme acceptability, effectiveness, and long-term sustainability within workplace settings.

Results

Respondent Characteristics

The study involved 60 older workers who participated in the implementation of the community nursing-based Healthy Workplace programme. Participants were recruited from community-based workplace settings in South Sulawesi, Indonesia. Sociodemographic characteristics collected included age, sex, educational attainment, occupation type, and length of employment. These characteristics were analysed to provide a

comprehensive profile of the study participants and to support the interpretation of the programme outcomes.

Table 1. Characteristics of Respondents (N = 60)

Variable	Category	n	%
Age (years)	60–64	28	46.7
	65–69	20	33.3
	≥70	12	20
Sex	Male	36	60
	Female	24	40
Educational Level	Elementary School	18	30
	Junior High School	16	26.7
	Senior High School	20	33.3
	Higher Education	6	10
	Employment Type	Informal Worker	38
	Formal Worker	22	36.7
Length of Employment (years)	<10	14	23.3
	10–20	27	45
	>20	19	31.7

As presented in Table 1, most respondents were aged 60–64 years (46.7%), male (60.0%), and employed in the informal sector (63.3%). Nearly half of the participants had worked for 10–20 years (45.0%), indicating substantial

work experience among the study population.

Baseline Occupational Health Assessment

Table 2. Baseline Occupational Health Conditions Among Older Workers (N = 60)

Occupational Health Condition	n	%
Lack of occupational health knowledge	52	86.7
Work-related fatigue	49	81.7
Poor ergonomic practices	46	76.7
Musculoskeletal complaints	44	73.3
Limited physical activity	40	66.7
Work-related stress	37	61.7
Hypertension-related symptoms	31	51.7

Table 2 presents the baseline occupational health conditions of the participants prior to programme implementation. The most commonly reported issue was a lack of occupational health knowledge (86.7%), followed by work-related fatigue (81.7%), poor ergonomic practices (76.7%), and musculoskeletal complaints (73.3%). More than half of the participants also reported limited physical activity

(66.7%), work-related stress (61.7%), and hypertension-related symptoms (51.7%). These findings indicate substantial occupational health challenges among older workers and underscore the need for comprehensive workplace health interventions.

Expert Validation of the Healthy Workplace Programme

Table 3. Expert Validation of the Community Nursing-Based Healthy Workplace Programme

Assessment Aspect	Mean Score	Interpretation
Relevance of programme content	4.70	Very Good
Clarity of intervention procedures	4.50	Very Good
Suitability for older workers' needs	4.80	Very Good
Integration of community nursing principles	4.75	Very Good
Implementation feasibility	4.60	Very Good
Sustainability potential	4.55	Very Good
Overall Mean Score	4.65	Very Good

Table 3 presents the results of expert validation of the community nursing-based Healthy Workplace programme. All assessment domains received mean scores above 4.50,

indicating a high level of content validity and programme feasibility. The highest-rated aspect was suitability for older workers' needs ($M = 4.80$), followed by integration of community nursing principles ($M = 4.75$) and relevance of programme content ($M = 4.70$). The overall mean score of 4.65 indicates that the programme was considered highly appropriate and feasible for implementation among older workers.

Reliability of Research Instruments

Table 4. Reliability Analysis of Research Instruments

Variable	Number of Items	Cronbach's Alpha	Interpretation
Occupational health knowledge	15	0.82	Good Reliability
Worker productivity	12	0.85	Good Reliability
Worker well-being	14	0.88	Good Reliability
Workplace safety behaviour	10	0.79	Acceptable Reliability

Table 4 presents the reliability analysis of the research instruments. Cronbach's alpha coefficients ranged from 0.79 to 0.88, indicating acceptable to good internal consistency across all measurement scales. The highest reliability coefficient was observed for the worker well-being scale ($\alpha = 0.88$), followed by worker productivity ($\alpha =$

0.85) and occupational health knowledge ($\alpha = 0.82$). The workplace safety behaviour scale also demonstrated acceptable reliability ($\alpha = 0.79$). These findings indicate that all instruments were sufficiently reliable for assessing the study variables.

Changes in Occupational Health Knowledge

Table 5. Comparison of Occupational Health Knowledge Before and After Programme Implementation (N = 60)

Variable	Pre- Intervention Mean \pm SD	Post- Intervention Mean \pm SD	Mean Difference	p- value
Occupational health knowledge	58.4 \pm 9.2	82.7 \pm 7.5	24.3	<0.001

Table 5 presents changes in occupational health knowledge following programme implementation. The mean occupational health knowledge score increased from 58.4 \pm 9.2 before the intervention to 82.7 \pm 7.5 after the intervention, representing a mean increase of 24.3 points. Statistical analysis revealed a significant improvement in occupational health knowledge after participation in the community nursing-based Healthy Workplace programme ($p < 0.001$).

Changes in Worker Productivity

Table 6. Comparison of Worker Productivity Before and After Programme Implementation (N = 60)

Variable	Pre- Intervention Mean \pm SD	Post- Intervention Mean \pm SD	Mean Difference	p- value
Worker productivity	61.5 \pm 8.8	80.2 \pm 6.9	18.7	<0.001

Table 6 presents the comparison of worker productivity scores before and after programme implementation. The mean productivity score increased from 61.5 \pm 8.8 at baseline to 80.2 \pm 6.9 following the intervention, representing a mean increase of 18.7 points. The paired-sample analysis indicated a statistically significant improvement in worker productivity after participation in the community nursing-based Healthy Workplace programme ($p < 0.001$).

Changes in Worker Well-Being

Table 7 presents changes in worker well-being following programme implementation. Significant improvements were observed across all dimensions of well-being. Physical well-being increased from 60.3 \pm 7.9 to 79.5 \pm 6.7, representing a mean increase of 19.2 points. Psychological well-being showed the largest improvement,

increasing from 58.7 ± 8.4 to 81.1 ± 7.2 , with a mean difference of 22.4 points. Social well-being also improved substantially, rising from 62.1 ± 7.1 to 83.0 ± 6.5 , corresponding to a mean increase of 20.9 points. All observed changes were statistically significant ($p < 0.001$).

Table 7. Comparison of Worker Well-Being Before and After Programme Implementation (N = 60)

Dimension of Well-Being	Pre-Intervention Mean \pm SD	Post-Intervention Mean \pm SD	Mean Difference	p-value
Physical well-being	60.3 ± 7.9	79.5 ± 6.7	19.2	<0.001
Psychological well-being	58.7 ± 8.4	81.1 ± 7.2	22.4	<0.001
Social well-being	62.1 ± 7.1	83.0 ± 6.5	20.9	<0.001

Programme Evaluation

Table 8. Participant Evaluation of the Community Nursing-Based Healthy Workplace Programme

Evaluation Aspect	Mean Score	Interpretation
Programme usefulness	4.76	Very Good
Ease of participation	4.55	Very Good
Community nurse assistance	4.82	Very Good
Relevance to workers' needs	4.70	Very Good

Sustainability potential	4.60	Very Good
Overall satisfaction	4.74	Very Good

Table 8 presents participants' evaluations of the community nursing-based Healthy Workplace programme. All evaluation domains received mean scores above 4.50, indicating a high level of participant satisfaction and programme acceptability. Community nurse assistance received the highest rating (M = 4.82), followed by programme usefulness (M = 4.76) and overall satisfaction (M = 4.74). The findings suggest that the programme was perceived as relevant, beneficial, and feasible for supporting the occupational health needs of older workers.

Qualitative Findings

Thematic analysis of interview and focus group discussion data identified five major themes reflecting participants' experiences with the programme (Table 9). Participants reported increased awareness of occupational health, improved workplace comfort through ergonomic practices, and greater motivation to perform their work activities. Community nurse support was consistently perceived as a key factor

facilitating programme participation and understanding of workplace health issues. Participants also emphasized the importance of sustaining the programme to ensure continued benefits for older workers.

Table 9. Themes Identified from Qualitative Analysis

Theme	Participant	Representative Quotations
Increased health awareness		“I now understand how to maintain my health while working.”
Improved workplace comfort		“The ergonomic education reduced body pain during work.”
Enhanced work motivation		“I feel more enthusiastic and productive after joining the programme.”
Importance of community nurse support		“The nurses helped us better understand workplace health.”
Need for programme sustainability		“This programme should continue regularly for older workers.”

Discussion

The findings of this study demonstrate that the implementation of a Healthy Workplace programme based on community nursing principles significantly improved occupational health knowledge, productivity, and overall well-being among older workers. The substantial increase in occupational

health knowledge indicates that health education and continuous support provided by community nurses effectively enhanced workers’ awareness of workplace safety, healthy work practices, and self-care behaviours. These findings are consistent with previous studies reporting that occupational health education promotes preventive health behaviours and reduces workplace-related health risks among workers (Asiamah et al., 2025; Kernan et al., 2020). The results further suggest that participatory and community-based occupational health interventions can effectively address the complex health challenges experienced by ageing workers.

The improvement in worker productivity observed after programme implementation highlights the potential of workplace health interventions to support the work capacity of older employees. Enhanced productivity may be attributed to reduced work-related fatigue, improved ergonomic practices, and greater physical and psychological comfort during work activities. Although ageing is commonly associated with physiological changes that may affect work performance, the findings indicate that appropriate occupational health support can mitigate these limitations and help older workers maintain productive employment (Fattori et al.,

2025; Poutanen et al., 2026). These results reinforce previous evidence demonstrating that healthy workplace initiatives contribute positively to employee performance and work ability among ageing populations.

The programme also produced significant improvements across physical, psychological, and social dimensions of well-being, highlighting the importance of a holistic approach to workplace health promotion. Improvements in physical well-being were supported by ergonomic education, routine health assessments, and the promotion of regular physical activity, which may have reduced fatigue and musculoskeletal complaints (Shiri & Nikunlaakso, 2023). Psychological well-being improved through increased feelings of support, recognition, and motivation, while social well-being was strengthened through collaborative interactions among workers, community nurses, and workplace management. These findings support the view that workplace health programmes should address not only physical health concerns but also psychosocial well-being and social support systems (Gray et al., 2025).

A key contribution of this study is the demonstration of the important role of community nursing in occupational health management. Community nurses

functioned not only as health educators but also as facilitators, coordinators, advocates, and motivators who encouraged active worker participation throughout programme implementation (Magalh et al., 2024; Schaller et al., 2022). Furthermore, the participatory approach adopted in this study enabled older workers to actively identify workplace health problems, contribute to intervention planning, participate in programme implementation, and evaluate programme outcomes. Collaboration among workers, workplace management, healthcare providers, and community nurses strengthened programme acceptance and sustainability, supporting previous evidence that community empowerment-based interventions are effective in promoting sustainable behavioural change and long-term occupational health improvements (Nordin et al., 2022; Poscia et al., 2019).

Despite these promising findings, several limitations should be acknowledged. The study involved a relatively small sample drawn from specific community-based workplace settings, which may limit the generalisability of the findings to broader populations. In addition, the intervention period was relatively short, preventing an assessment of the long-term sustainability of programme

outcomes and behavioural changes over time (Shiri & Nikunlaakso, 2023). Some productivity and well-being indicators were also measured through self-reported assessments, which may have introduced response bias. Nevertheless, the positive outcomes observed among predominantly informal-sector workers, who often have limited access to occupational health services, suggest that community-based Healthy Workplace programmes represent a feasible and effective strategy for improving occupational health and supporting healthy ageing in resource-constrained work environments (Gangopadhyay, 2023).

Conclusion

This study demonstrated that the community nursing-based Healthy Workplace programme was effective in improving occupational health knowledge, productivity, and overall well-being among older workers. The findings indicate that integrating community nursing principles into workplace health management can provide a comprehensive approach to addressing the physical, psychological, and social health needs of an ageing workforce. The programme promoted healthier work practices, enhanced workplace safety awareness, reduced

occupational health risks, and supported improvements in work performance and well-being.

The use of a Research and Development (R&D) approach facilitated the systematic design, implementation, and evaluation of a workplace health programme tailored to the needs of older workers. Active collaboration among community nurses, workers, workplace management, and local health stakeholders contributed to programme feasibility and acceptability. These findings suggest that community-based Healthy Workplace programmes have the potential to serve as sustainable occupational health interventions, particularly in settings where access to occupational health services remains limited. Future studies are recommended to evaluate the long-term effectiveness of the programme using larger and more diverse populations and objective measures of occupational health outcomes.

Acknowledgements

The authors sincerely thank all older workers who participated in this study. Appreciation is also extended to workplace management teams, community health nurses, personnel from local health centres, and community representatives in South Sulawesi for their valuable collaboration

and support throughout the implementation of the Healthy Workplace programme. The authors further acknowledge the contributions of colleagues and academic advisors whose guidance and constructive feedback supported the successful completion of this study.

Conflict of Interest

The authors declare that there are no conflicts of interest related to this study. The research was conducted independently without any financial, commercial, legal, or professional influence that could have affected the study design, implementation, analysis, or interpretation of the findings.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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