

# Empowering *Posbindu* cadres to enhance resilience and improve the economic well-being of elderly women in Kadilobo Hamlet, Purwobinangun, Sleman, Yogyakarta



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## ABSTRACT

**Introduction:** In Kadilobo Hamlet, approximately 50 elderly women are facing significant physical, mental, social, and spiritual health challenges as a result of the prolonged eruption of Mount Merapi and the lingering effects of the COVID-19 pandemic. These challenges manifest as increased levels of anxiety and depression, as well as physical ailments such as hypertension and diabetes, further complicated by social and cognitive impairments. *Program Kemitraan Masyarakat* (PKM) aims to empower *posbindu* cadres through education, training, and technology based on local product marketing. The program addresses explicitly both health—through the development of the “Enhancing the Seven Dimensions of Resilient Elderly” module—and economic struggles faced by elderly women in the area. By empowering *Posbindu* cadres, the initiative aims to strengthen the resilience of elderly women affected by the eruption and the pandemic, with a focus on food security and product marketing to improve their economic stability and overall well-being.

**Methods:** The community service project targeted 20 *Posbindu Lansia* cadres and 30 elderly women in Kadilobo Hamlet, Purwobinangun, Pakem, Sleman, conducted from July to September 2023. Research tools included the “Enhancing the Seven Dimensions of Resilient Elderly” and “Enhancing Food Security Processing and Economic Improvement for Elderly Women” modules, alongside questionnaires and videos. Pre-tests and post-tests examined knowledge and skills improvement in resilient elderly women, local food security processing, and health status across various dimensions. Data were analyzed using quantitative and qualitative descriptive methods.

**Results:** Following the community service activities, notable improvements were observed in knowledge and skills related to resilient elderly empowerment, local food processing, and the various dimensions of resilience in elderly individuals.

**Conclusion:** Empowering *Posbindu* cadres has the potential to enhance the health resilience, food security, and economic conditions of elderly women in Kadilobo Hamlet, Purwobinangun, Sleman, Yogyakarta.

**Keywords:** elderly women; cadre; *posbindu*; food security; health.

**Cite This Article:** Sumarni, D.W., Dewi, W.M.K., Kurniawati, A.L., Dewantiputri, V., Pratiwi, I., Rahmadani, A.N., Putri, T.W.S., Ermamilia, A. 2025. Empowering *Posbindu* cadres to enhance resilience and improve the economic well-being of elderly women in Kadilobo Hamlet, Purwobinangun, Sleman, Yogyakarta. *Journal of Community Empowerment for Health* 8(2): 113-119. DOI: 10.22146/jcoemph.99315

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Submitted: 2024-08-21

Revised: 2024-09-23

Accepted: 2024-12-19

## INTRODUCTION

In Kadilobo Hamlet, Purwobinangun, Pakem, Sleman, approximately 50 elderly women are vulnerable to physical, mental, social, and spiritual health issues as a result of both the recurring eruptions of Mount Merapi and the prolonged impact of the COVID-19 pandemic. This region is classified as a Disaster-Prone Area (*Kawasan Rawan Bencana*) III, making it

highly susceptible to volcanic activity. In recent years, Mount Merapi has erupted multiple times, with significant events recorded in November 2010, December 2020, January 2021, and most recently in April 2023. These eruptions have led to a marked increase in post-disaster psychosocial disorders among elderly women in Purwobinangun, with reported rates of anxiety reaching 63.25% and depression 79.25%, compared to a baseline

incidence of approximately 60%. These psychological issues are likely to re-emerge with each subsequent disaster.<sup>1,2</sup>

Elderly women, in particular, are especially vulnerable, exhibiting a 2:1 ratio in developing post-traumatic stress disorder (PTSD) and other mental disorders compared to younger adults, due to differing adaptive responses.<sup>3</sup> Additionally, elderly women are more susceptible to depression than elderly men,

as they tend to rely more on their emotions than on rational thinking. As a result, elderly women may experience emotional eating behaviors.<sup>4,5</sup> It is related to adverse life experiences, including discrimination, violence, sexual harassment, exploitation of labor, widowhood, societal pressures, and poor socio-economic conditions.<sup>6,7</sup> Furthermore, they frequently suffer from physical health issues such as hypertension, diabetes mellitus, and joint pain, as well as cognitive, social, sleep, and quality of life challenges.<sup>8,9</sup> The aftermath of the COVID-19 pandemic has further prolonged their psychosocial stress, exacerbating economic difficulties, increasing debt, and intensifying family conflicts, all of which contribute to the deterioration of their physical, mental, social, and spiritual well-being.<sup>10</sup> Moreover, approximately 62.5% of elderly women experience emotional and physical abuse, as well as economic exploitation.<sup>11</sup> Some have also been victims of domestic violence, which further exacerbates their health problems and increases their susceptibility to various diseases.<sup>12</sup>

The main issues faced by the *Posbindu* cadres and elderly women in Kadilobo Hamlet include physical, mental, social, and spiritual health challenges. The health problems and economic decline experienced by the elderly due to the post-Merapi eruption and the post-COVID-19 pandemic effects require immediate attention. Timely intervention is crucial to prevent further health deterioration, disability, and even fatalities among this vulnerable group. However, a lack of knowledge among *Posbindu* cadres and village officials regarding strategies to enhance elderly women's resilience and prevent health issues has hindered progress. Therefore, raising awareness among residents about these critical concerns is essential. Through this *Program Kemitraan Masyarakat* (PKM), the empowerment of *Posbindu* cadres aims to improve the resilience of elderly women and their economic well-being following the Merapi eruption and the COVID-19 pandemic. One key strategy involves developing processed food products using local ingredients to ensure food security and stimulate economic

activity. Additionally, efforts will be made to improve the marketing capacity of local products from Kadilobo Hamlet by utilizing digital channels such as websites and popular e-commerce platforms, including Shopee, Tokopedia, GoFood, GrabFood, and Instagram.

## METHOD

The community service project targeted 20 *Posbindu Lansia* cadres and 30 elderly women in Kadilobo Hamlet, Purwobinangun, Pakem, Sleman, conducted from July to September 2023. Research tools included the "Enhancing the Dimensions of Resilient Elderly" and "Enhancing Food Security Processing and Economic Improvement for Elderly Women" modules, along with a sociodemographic questionnaire, pre-test, and post-test, and videos. Pre-tests and post-tests were conducted to measure knowledge and skills improvement in resilient elderly women, local food security processing, and health status across various dimensions. The pre-test was conducted before the educational activity intervention, while the post-test was conducted after the educational activity. The community service organizers assisted the elderly women in completing the pre- and post-tests due to their limited literacy skills. Qualitative data were obtained through interviews and feedback sessions during the community service activities. Data were analyzed using both quantitative and qualitative descriptive methods, with quantitative analysis performed using Microsoft Excel or Google Spreadsheet. This community service (*Program Pengabdian Berbasis Masyarakat*), under the RIRN Health Topic and Community

Partnership Scope, was monitored and accepted by the Ministry of Education, Culture, Research, and Technology (*Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi*) with Proposal ID: 1ce7a7d9-f6c8-482c-972e-315d283b91f5, and has been approved by the Director of the Directorate for Community Service (*Direktorat Pengabdian Kepada Masyarakat* (DPKM)), Universitas Gadjah Mada.

## RESULT

Based on Table 1, there are 20 *Posbindu Lansia* cadres in Kadilobo Hamlet. Most of the cadres are between 50 and 59 years old. Regarding educational background, the majority of cadres, which is 15 cadres (75%), graduated from senior high school (SMA (*Sekolah Menengah Atas*) or equivalent).

According to Table 2, 70% of the 20 elderly women in Kadilobo Hamlet are between 60 and 69 years old in terms of their highest level of education. Most of these women have attained only low level of education such as 12 elderly women (60%) completed their education at the junior high school (SMP (*Sekolah Menengah Pertama*) or equivalent) and 8 elderly women (40%) completed their education at the elementary school (SD (*Sekolah Dasar*) or equivalent). In terms of marital status, more than half of the elderly women, or 11 individuals (55%), were widowed. Additionally, the data show that most of the elderly women in Kadilobo Hamlet are primarily employed as agricultural laborers.

Based on Table 3, the average knowledge scores across the Resilient Elderly Dimension varied significantly.

**Table 1. The characteristics of *Posbindu Lansia* cadres in Kadilobo Hamlet (n=20)**

| Characteristics       | N  | %  |
|-----------------------|----|----|
| <b>Age</b>            |    |    |
| 30 - 39 years old     | 2  | 10 |
| 40 - 49 years old     | 6  | 30 |
| 50 - 59 years old     | 12 | 60 |
| <b>Last Education</b> |    |    |
| Junior High School    | 4  | 20 |
| Senior High School    | 15 | 75 |
| Diploma               | 1  | 5  |

**Table 2.** The characteristics of elderly women in Kadilobo Hamlet (n=20)

| Characteristics       | N  | %  |
|-----------------------|----|----|
| <b>Age</b>            |    |    |
| 60 - 69 years old     | 14 | 70 |
| 70 - 79 years old     | 5  | 25 |
| ≥ 80 years old        | 1  | 5  |
| <b>Last Education</b> |    |    |
| Elementary School     | 8  | 40 |
| Junior High School    | 12 | 60 |
| <b>Marital Status</b> |    |    |
| Married               | 9  | 45 |
| Widowed               | 11 | 55 |
| <b>Occupation</b>     |    |    |
| Farmer                | 5  | 25 |
| Labourer              | 9  | 45 |
| Housewife             | 6  | 30 |

**Table 3.** Average knowledge score of cadres on the Resilient Elderly Dimensions

| Type of Knowledges      | Average Score   |                |             |
|-------------------------|-----------------|----------------|-------------|
|                         | Before Training | After Training | Changes (%) |
| Spiritual Dimension     | 45              | 87,5           | 94,4        |
| Emotional Dimension     | 60              | 81,25          | 35,42       |
| Physical Dimension      | 65              | 91,25          | 40,38       |
| Intellectual Dimension  | 45              | 77,5           | 72,2        |
| Social Dimension        | 65              | 90             | 38,46       |
| Vocational Dimension    | 45              | 85             | 88,89       |
| Environmental Dimension | 50              | 87,5           | 75          |

**Table 4.** Average skill score of cadres on the improving Resilient Elderly Dimensions

| Type of Skills          | Average Score   |                |             |
|-------------------------|-----------------|----------------|-------------|
|                         | Before Training | After Training | Changes (%) |
| Spiritual Dimension     | 42,5            | 85             | 100         |
| Emotional Dimension     | 50              | 80             | 60          |
| Physical Dimension      | 60              | 87,5           | 45,83       |
| Intellectual Dimension  | 42,5            | 70             | 64,7        |
| Social Dimension        | 60              | 87,5           | 45,83       |
| Vocational Dimension    | 42,5            | 82,5           | 94,11       |
| Environmental Dimension | 45              | 85             | 88,88       |

The average knowledge score in the spiritual dimension showed a substantial increase of 94.4%. In the emotional dimension, the average score rose by 35.42%. Knowledge related to the physical dimension increased by 40.38%. The intellectual dimension experienced a significant increase of 72.2%. For the social dimension, knowledge improved by 38.46%. The vocational dimension also showed a considerable increase of 88.89%. Lastly, knowledge in the environmental dimension increased by 75%.

Based on Table 4, the average skills

scores of *Posbindu Lansia* cadres in enhancing the dimensions of resilient elderly individuals showed notable improvements. The physical and social dimensions both increased by 45.83%, rising from an average score of 60 before training to 87.5 after training. The average skills score in the spiritual dimension showed a substantial increase of 100%. In the emotional dimension, the average skills score increased by 60%. Skills in the intellectual dimension improved by 64.70%, while the vocational dimension experienced a significant increase of

94.11%. The environmental dimension also showed a considerable increase, with scores rising by 88.88%. Activities aimed at enhancing the dimensions of resilience among elderly women are illustrated in Figure 1, Figure 2, and Figure 3.

According to the data presented in Table 5, regarding the tendency toward depression among elderly women, 45% are inclined to experience depression. In terms of anxiety, 35% of elderly women tend to experience anxiety. Regarding the tendency of cognitive function disorders in elderly women, 85% of elderly women do not show a tendency toward such disorders. For social function disorders, 25% of elderly women are inclined to experience these issues, while 75% are not. Additionally, approximately 60% of elderly women have high levels of religiosity, while 40% have low levels of religiosity.

Pre-tests and post-tests were conducted to assess the participants' knowledge level regarding the production of products made from *salak*, chili, and tilapia fish. The assessments covered knowledge of the types of processed products, processing methods, and packaging techniques for each ingredient. According to Table 6, the average pre-test and post-test scores indicated an overall knowledge improvement of 50.82%. The greatest increase in knowledge was observed in the production of tilapia fish products. Specifically, knowledge improvement for each ingredient was 38.98% for *salak* products, 54.57% for chili products, and 60.01% for tilapia fish products.

In terms of skills, evaluations were also conducted using pre-tests and post-tests. These assessments measured participants' abilities in processing and packaging various food items, including *salak*, chili, and tilapia fish. Product processing activities are illustrated in Figure 4 and Figure 5. Based on Table 6, According to Table 6, the average post-test skill scores were 71.74 for *salak*-based product training, 74.46 for chili-based product training, and 74.46 for tilapia fish-based product training. Skill improvements for each material were 43.48% for *salak* products, 51.00% for chili products, and 51.00% for tilapia fish products. Participants demonstrated the most significant skill improvement in producing

processed chili and tilapia fish products. The finished and packaged products are shown in Figure 6.

**DISCUSSION**

Well-structured and organized interventions can improve average

scores across various dimensions among cadres and elderly women. One primary approach to achieving this improvement is to deliver materials in simple language and provide concrete examples drawn from the daily activities of cadres and elderly women, particularly those related to

religious practices. For example, activities such as recitation, expressing gratitude, and socializing during religious gatherings can enhance spiritual, emotional, and social dimensions. Additionally, involving elderly women in group recreational activities such as dancing, singing, laughter therapy, and dining at tourist destinations can further strengthen their social and physical dimensions. Strong spiritual, emotional, physical, and social well-being reduces the risk of depression, anxiety, loneliness, and other mental health disorders, leading to a better quality of life and minimizing negative impacts on daily activities and physical health. Engagement in daily life activities increases life satisfaction and interest in participation.<sup>13</sup> Elderly women with high levels of religiosity and disciplined prayer habits tend to experience lower levels of depression. Furthermore, those with strong spiritual well-being are more likely to derive positive meaning from daily experiences, which helps them maintain a positive outlook on life.<sup>14</sup>

**Table 5. Tendencies of depression, anxiety, cognitive function impairment, social function impairment, and religiosity among elderly women**

| Elderly Women                                 | N  | %  |
|---|----|----|
| <b>Depression Tendency</b>                    |    |    |
| Yes   | 9  | 45 |
| No  | 11 | 55 |
| <b>Anxiety Tendency</b>                       |    |    |
| Yes   | 7  | 35 |
| No  | 13 | 65 |
| <b>Cognitive Function Impairment Tendency</b> |    |    |
| Yes   | 3  | 15 |
| No  | 17 | 85 |
| <b>Social Function Impairment Tendency</b>    |    |    |
| Yes   | 5  | 25 |
| No  | 15 | 75 |
| <b>Religiosity</b>                            |    |    |
| High  | 12 | 60 |
| Low   | 8  | 40 |

**Table 6. Changes in average knowledge and skills in local food resilience processing**

| Characteristic Aspects                      | Aspect Classification | Average Score   |                |              |
|---|-----------------------|-----------------|----------------|--------------|
|   |                       | Before Training | After Training | Changes (%)  |
| Knowledge of Local Food Security Processing | Salak                 | 57,87           | 80,43          | 38,9         |
|   | Chili                 | 56,02           | 86,59          | 54,57        |
|   | Tilapia Fish          | 51,85           | 82,97          | 60,01        |
|   | <b>Total Average</b>  | <b>55,25</b>    | <b>83,33</b>   | <b>50,82</b> |
| Skills of Local Food Security Processing    | Salak                 | 50              | 71,74          | 43,48        |
|   | Chili                 | 49,31           | 74,46          | 51           |
|   | Tilapia Fish          | 49,31           | 74,46          | 51           |
|   | <b>Total Average</b>  | <b>49,54</b>    | <b>73,55</b>   | <b>48,46</b> |



**Figure 1.** Local cultural wisdom gymnastics



**Figure 2.** Mental health detection and education



**Figure 3.** Gymnastics with elderly women and cadres



**Figure 4.** Local food processing by elderly women and cadres



**Figure 5.** Handover of processed local food products



**Figure 6.** Local food products such as *jenang salak*, *sirup salak*, *nugget ikan nila*, *dimsum ikan nila*, *sambal ikan nila*, dan *rempeyek cabai*

The importance of practical material delivery is also evident in improving the physical dimension. Cadres now recognize the significance of monitoring blood pressure, blood sugar, height, and weight, as well as collaborating with health centers to manage elderly individuals with degenerative diseases. Elderly-specific exercise programs (*senam lansia*) that incorporate local cultural wisdom are essential for improving physical fitness. Furthermore, group recreational activities and shared laughter can boost the immunity of elderly women, thereby positively affecting their physical well-being. The feelings of happiness and joy experienced by elderly women during these activities can influence hormone levels, such as serotonin (5-hydroxytryptamine), which is associated with happiness and may help reduce depression.<sup>15</sup>

Regarding the improvement of the intellectual dimension, the material provided to cadres is easy to understand because it is directly applicable to the daily lives of elderly women. Reminiscence therapy, which includes traditional games such as *dakon*, *bekelan*, *sumbar suru*, and recalling joyful memories from the past, can improve cognitive function. This therapeutic approach, which involves recalling positive past experiences, strengthens memory stimulation in elderly women and helps reduce cognitive decline. Additionally, reminiscing about pleasant past events is beneficial for personal self-recognition. The effects of reminiscence therapy can enhance quality of life, self-esteem, and psychosocial well-being among the elderly. This method is also effective for elderly individuals with dementia.<sup>16</sup>

The social dimension can be enhanced through communal activities such as mutual assistance, ritual events, community health services (*posyandu*), and joint savings and loan groups (*arisan*) that are regularly undertaken by elderly women in their daily lives. These activities strengthen their social interactions and support their social dimension. Enhancing the social dimension through active participation of elderly women in the community helps build relationships by communicating with each other, increases life satisfaction and enthusiasm, and assists in managing negative emotions. It is expected that cadres and close family members will support the enhancement of the social dimension by providing opportunities for elderly women to actively engage in the community and by offering optimal social, financial, and emotional support.<sup>17</sup>

Improving the environmental dimension involves creating a comfortable and safe environment for elderly women. This includes providing appropriate seating, handrails, well-lit and secure bathroom facilities, and addressing physical hazards to prevent falls. Enhancing the environment and public facilities to be elderly-friendly can significantly increase comfort and promote greater physical activity among the elderly by ensuring that their surroundings are supportive and adequate.<sup>18</sup>

This practical and integrated approach also contributes to the enhancement of the spiritual and emotional dimensions of elderly women, as the materials and activities are directly relevant to their daily lives. Social support, recreational activities, and participation in local cultural events significantly improve their emotional well-being. Additionally, the vocational dimension is strengthened by providing training on local food resilience, where cadres are taught how to prepare local food ingredients and utilize appealing processing techniques that can be marketed to support local economic sustainability.

The advantages of this community service initiative include securing sufficient funding for implementation, the involvement of experts who serve as educators for cadres and elderly women, and the opportunity to conduct experiments in producing local products using the dietetic laboratory. However, there are several limitations, such as difficulties in coordinating with cadres due to conflicting schedules and activities in Kadilobo Hamlet, limited human resources for activity management, and insufficient information regarding the physical health of elderly women.

## CONCLUSION

Empowering *Posbindu* cadres can strengthen the resilience of elderly women by enhancing various dimensions of well-being and increasing their knowledge and skills. Additionally, it can improve food security and the economic conditions of elderly women in Kadilobo Hamlet by promoting the processing of local foods into value-added products. This

community service program recommends that *Posbindu Lansia* cadres incorporate or regularly conduct activities aimed at enhancing the resilience of elderly women, in collaboration with *Puskesmas* Pakem in the field of elderly care. Furthermore, *Posbindu Lansia* cadres are encouraged to remain attentive to the mental health conditions of elderly women.

## ACKNOWLEDGEMENT

The authors would like to thank all individuals who participated in this research, including the *Posbindu Lansia* cadres and elderly women, as well as the Dean of the School of Graduate Studies and the Dean of the Faculty of Medicine, Public Health, and Nursing at Universitas Gadjah Mada. This project received support and approval from the Ministry of Education, Culture, Research, and Technology. The authors also wish to acknowledge the community service team and faculty members for their dedicated contributions.

## CONFLICT OF INTEREST

The authors stated that none of them has any conflicts of interest in this paper.

## RESEARCH FUNDING

This community service was funded by the Ministry of Education, Culture, Research, and Technology in the 2023 Community Service funding scheme.

## AUTHOR CONTRIBUTION

Author contribution of this community service are as follows: conceptualization by author 1, 2, 3, 4, 5, 6, 7, 8; Design by author 1, 2, 3, 7, 8; Literature search by author 2, 3, 4, 5, 6; Data acquisition by author 2, 3, 4, 5, 6; Data analysis by author 2, 3, 6; Manuscript preparation by author 1, 2, 3, 4, 5; Manuscript editing by author 2; Manuscript reviewed by author 1, 2, 3, 7, 8; and Fund Management by author 1, 2, 5, 6.

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