

# Screening Lung Cancer in Sampang Regency, Madura Through Empowerment and Health Cadres Formation

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**Abstract** Treatment for lung cancer remains challenging since most of the patients seek medical advice at an advanced stage of disease. Sampang is one of the regencies that refers many lung cancer patients in late stages to Dr. Soetomo Hospital, Surabaya, due to lack of information of lung cancer and early detection. Limited number of health workers to deliver comprehensive education to all areas requires community volunteers to fill this gap. The objective of this study was to educate and promote lung cancer awareness to the health cadres in Sampang as well as training them to early detecting individuals in the community with high-risk factors, as an attempt to bridge between the health workers and community, therefore the number of lung cancer early detection may be improved. Early identification of cancer may result in reduced morbidity and mortality, and in some cases, if detected early enough, therapy may involve only surgery. The education was provided for the health cadres by providing information related to lung cancer and guidance to fill the questionnaire and scoring of lung cancer risk factors. The participants' understanding was measured using a pretest-posttest design. Thirty health cadres have been successfully formed, and they have gained knowledge of lung cancer and mastered capability to perform early-screening of lung cancer in the community as shown by the increase of post-test result compared to pre-test. The health cadres then implemented their knowledge of lung cancer early-screening by distributing questionnaires of lung cancer risk factor scoring to residents using door to door methods. The questionnaires' evaluation collected by the health cadres showed that there were 93 residents with high-risk factors of lung cancer. In conclusion, the health cadres has been capable to detect high-risk factors individuals in the community which further be followed up by community health workers comprehensively.

## 1. INTRODUCTION

Lung cancer encompasses all malignant diseases of the lungs originating from the lungs (primary). In clinical definition, primary lung cancer refers to malignant tumor originating from bronchus (bronchogenic carcinoma) (Menkes RI, 2023). According to epidemiological data obtained from Global Cancer Observatory (GLOBOCAN), the global incidence of lung cancer in 2020 amounted to 2,206,771 cases. This equates to 11.4% of all cancers

worldwide in 2020 (Global Cancer Observatory, 2020b).

The World Health Organization (WHO) reported that lung cancer was the leading cause of cancer deaths in 2020, accounting for 1.80 million death cases. Cancer World Bank identifies lung cancer as the malignancy that causes the greatest number of mortalities worldwide (Global Cancer Observatory, 2020b; Goodarzi et al., 2019). Meanwhile, in Indonesia, the mortality rate of lung cancer

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in 2020 was 13.2%, or 30,843 death cases reported, according to GLOBOCAN. This data establishes lung cancer as the leading cause of cancer fatalities in Indonesia (Global Cancer Observatory, 2020a). The type of lung cancer and the complications that occur determine lung cancer mortality. Comorbidities, infectious conditions, as well as the stage and extent of cancer cell metastasis contribute to increased morbidity and mortality (Sari et al., 2019).

In Indonesia, treatment for lung cancer remains challenging since most of the patients seek medical advice at an advanced stage of the disease. This is primarily due to fear and ignorance towards the disease. Patient's preference for using alternative methods, along with the misconception about cancer, will decrease life expectancy and quality of life while increasing mortality (Amin et al., 2017; Jayalie et al., 2016). The ignorance and the delay in pursuing medical help make treatment unattainable for these patients. The mortality and morbidity remain high because most of the patients present with late-stage cancer (Widjaja et al., 2019).

Sampang is one of the regencies that refers many lung cancer patients to Dr. Soetomo Hospital, Surabaya, and unfortunately, a majority of these patients are already in late stages of the disease. The risk factor of lung cancer in the society of Sampang Regency includes active and passive smoking activity, and indoor pollution. The lack of knowledge of the danger of smoking among the Sampang Regency community contributes as one of risk factor for lung cancer. Knowledge is closely related to the health awareness of individual (Patila & Sumargi, 2017).

Furthermore, health workers in Sampang experienced difficulties in the early detection of lung cancer in the community due to the limited number of personnel to cover the comprehensive communication and education to all areas including the marginal. Therefore, it is necessary to empower community volunteers, referred to as health cadres, whom healthcare professionals will train to bridge the gap between healthcare providers and the community. These health cadres in the future will help the healthcare professionals in educating the community by providing information related to lung cancer, including its symptoms, risk factors, and hazards as well as collecting data of high-risk individuals to be followed-up comprehensively.

The formation of health cadres through empowerment has been performed in various diseases early prevention, including cervical cancer (Fitriyanti, 2022; Juwita & Prabasari, 2023; Lestari et al., 2021), child-stunting (Ahmad et al., 2023; Friska et al., 2022; Mediani et al., 2005), COVID-19 (Agatha & Handayani, 2022), oral dental disease and drug use (Aristiyanto & Harimurti, 2023). Early detection and prevention is one of the best ways to reduce mortality and morbidity. Based on previous studies, the health cadres have fairly good knowledge of the diseases and contribute to improving the quality of public health status. Thus, this Community Service team from Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Airlangga performed this

community service activity as prevention attempt as well as early screening of lung cancer by forming health cadres that further will be directly deployed to the people of Sampang Regency to help promote lung cancer awareness and the importance of self-health checking to the professionals as early prevention and detection.

## 2. METHOD

This community service activity was carried out in the Community Health Center of Camplong Sub-district in Sampang Regency, Madura. The knowledge-sharing session of lung cancer awareness was conducted on August 29, 2023, in order to form health cadres for early detection of lung cancer to the society in Sampang Regency. This community service was held by the Community Service team from the Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Airlangga in collaboration with health workers from the Camplong Community Health Center. The targets of these activities are adult residents in Camplong Sub-district, Sampang Regency, Madura, East Java. There are several steps in this community service including preparation, implementation, and evaluation.

### 2.1 Preparation

The preparatory activities were carried out by holding a series of meetings with the health workers of the Camplong Community Health Center, collaborating and providing guidance to the health cadres. These health cadres were selected by one of the health workers in Sampang Community Health Center, who was the person-in-chief (PIC). The PIC contacted the leaders of each sub-district in Sampang, and each of the leaders selected several residents who speak both Madurese and Indonesian well and have good public communication as the health cadres.

### 2.2 Implementation

#### 2.2.1 Community counseling

Community counseling was carried out on August 29, 2023, through providing education on lung cancer, including its symptoms, risk factors, and hazards, as well as guidance to fill the questionnaire and scoring of lung cancer risk factors as early screening methods of lung cancer. The knowledge-sharing session was attended by community leaders, head of community health center, and 30 health cadres.

The participants' understanding was measured using a pretest-posttest design. The pretest was given before the session began, while the posttest was conducted by asking the participants to complete a questionnaire about lung cancer after the knowledge sharing was held and given. Both used the same questions, which consisted of 10 multiple choice questions. The education given was mainly about the definition, risk factors, symptoms and dangers of lung cancer.

#### 2.2.2 Post-community counseling

Every cadre in their own domicile was required to take

random samples of 15–20 participants who met eligibility criteria (more than 17 years old, has an Indonesian identity card, resides and works in Sampang). The participants in lung cancer early screening included in this study were 577 people. The health cadres conducted early detection of lung cancer by distributing questionnaires to the subjects using door-to-door methods. The questionnaires consisted of patients' identity and lung cancer risk factor scoring, which was categorized into nine questions as below:

1. Gender: male (3); female (1)
2. Age: >65 years old (3); 45–65 years old (2); <45 years old (1)
3. Personal history of cancer: yes, >5 years ago (3); yes, <5 years ago (2); never (1)
4. Family history of cancer: lung cancer (4); other than lung cancer (2); none (1)
5. Smoking history: active smoker (4); past smoker (3); passive smoker (2); non-smoker (1)
6. Exposure to carcinogenic chemicals in occupational site for >5 years: yes (3); not sure (2); no (1)
7. Pollutant exposure in the residential area: yes (3); not sure (2); no (1)
8. Unhealthy house environment: yes (3); not sure (2); no (1)
9. Medical history of chronic lung disease: tuberculosis (3); other chronic lung disease (2); never (1)

The severity of risk factors:

- Low:  $\leq 11$
- Moderate: 12–16
- High: 17–29

### 2.3 Evaluation

In evaluating the knowledge of extension health cadres after receiving counseling, the pretest and posttest were assessed by dividing them into two categories, namely high with a value of more than 80 ( $>80$ ) and low with a value of less than and equal to 80 ( $\leq 80$ ), then the results were compared to see the improvement of knowledge about lung cancer.

The lung cancer risk factor scoring questionnaires distributed to Sampang residents by health cadres were collected and sent to our team, and the data were processed to find patients' characteristics according to the severity of risk factors. In the long term, this activity is expected to contribute to the prevention and early detection of malignant lung tumors and reduce morbidity and mortality due to delayed diagnosis of lung cancer.

## 3. RESULT AND DISCUSSION

The counseling was held on August 29, 2023, and was attended by the head of local health service, head of community health center, and 30 health cadres as shown in Figure 1. The event was carried out well and smoothly thanks to the good cooperation between the Community Service Team and the Community Health Center Committee, as well as the enthusiasm of the cadres and health workers of the Community Health Center to listen and ask some questions. The counseling program started at 09.00 WIB and opened with a remark from the Head of Sampang Regency Health Service, the Head of the Camplong Community Health Center, video screening of a remark by the dean of Universitas Airlangga's Faculty of Medicine, and remarks from the leader of our community service team. Subsequently, the event continued with a presentation on Increasing Understanding of Lung Cancer Early Detection, question and answer session, and post-test. The results of the pre-test and post-test are shown in Table 1.



Figure 1. Community counseling in Camplong Community Health Center

Based on the pre-test and post-test comparison results in Table 1, the number of health cadres who understood the topic of lung cancer and its early detection after the presentation increased.

Following the community counseling, early detection was performed by health cadres who had been educated by distributing lung cancer risk factor scoring questionnaires to 577 subjects. The cadres were given the opportunity to implement their new knowledge and skills during the knowledge-sharing session by distributing the lung cancer risk factors questionnaires to the selected residents in Sampang via door-to-door method. The results of these investigation were evaluated to determine individuals in Sampang who have high risk of lung cancer, that further will be followed up routinely by Sampang community health workers in Posyandu (Integrated Health Service Post) using Kartu Sehat (Healthy Card) created by our community service team. If the clinical symptoms supporting lung cancer suspicion were found, the patients will be referred to the hospital to get better treatment. The results of the questionnaires evaluation were presented on Table 2, from those data it was obtained that 93 people in Sampang has high-risk of lung cancer.

Table 1 . Pre-test and post-test questionnaire results

Variable	Pre-Test		Post-Test	
	High Score	Low Score	High Score	Low Score
Knowledge about lung cancer and early detection screening	30% (9 people)	70% (21 people)	86.7% (26 people)	13.3% (4 people)

Table 2 . Patients' characteristics according to questionnaires of scoring severity of risk factors

No	Characteristics	Risk Factors Severity		
		Low (n= 216)	Moderate (n= 268)	High (n= 93)
1	Gender			
	Male	15	189	90
	Female	201	79	3
2	Age			
	<45 years	139	139	28
	45-65 years	63	108	55
	>65 year	14	21	10
3	Ethnicity			
	Maduranese	213	265	90
	Javanese	3	3	3
	Others	0	0	0
4	Smoking History			
	Active smoker	5	136	76
	Past smoker	0	7	8
	Passive smoker	66	73	7
	Nonsmoker	145	52	2
5	Respiratory Symptoms			
	Chronic cough	4	11	17
	Hemoptysis	0	0	2
	Shortness of breath	6	26	19
	Chest pain	8	16	10
	None	199	226	53
6	Non-respiratory Symptoms			
	Lump	0	3	6
	Body weight loss	3	16	14
	Weakness	6	28	16
	Headache	29	50	22
	Seizure	0	2	0
	Paralyzed/Limbs weakness	2	7	2
	Bone pain	13	27	13
	Stomach disorders	1	5	5
	Neck and arm swelling	0	0	1
	Others	2	17	7
	None	174	180	38
7	History of Tuberculosis Treatment			
	Former TB patients	0	5	7
	On treatment	0	2	6
	None	216	261	80
8	History of COVID			
	2020	0	0	0
	2021	12	8	1
	2022	0	0	0
	Never	204	260	92
9	History of Diabetes Mellitus			
	Yes	6	9	6
	No	210	259	87

Early detection involves two important components: screening and education to identify symptoms and encourage an early diagnosis. Early cancer detection focuses on recognizing symptomatic individuals as soon as possible in order to maximize their potential for successful treatment. Early identification of cancer may result in reduced morbidity and improved survival, and in some cases, if detected early enough, therapy may involve only surgery (Dillner, 2019; Schiffman et al., 2015; World Health Organization, 2023).

Basic requirements for health cadres to actively participate in the early detection of lung cancer include knowledge and skills to maximize their respective roles, which were expected to improve optimally with high motivation. Empowerment is a systematic process aimed at gaining a comprehensive understanding and control over personal, social, economic, and political status to enact initiatives that can improve individuals' health. This definition applies to both personal and community settings and is a cornerstone of health promotion, as endorsed by the World Health Organization (WHO). Empowerment involves strategic approaches encouraging active participation, raising awareness, and forming problem-solving skills, particularly targeting socially disadvantaged groups (Lindacher et al., 2018).

To our knowledge, our project is the first to empower community volunteers as health cadres to provide a community-based intervention to raise lung cancer screening awareness in the community. Previous study by Williams et al., (2021) promoted community awareness of lung cancer screening among disparate populations by training community professional health workers, and they suggested that community-engaged project found were effective in increasing the knowledge of lung cancer screening and in changing general cancer knowledge, attitudes, and beliefs related to lung cancer.

The post-test score presented a baseline finding of low knowledge about lung cancer screening, and this is consistent with another study by Smith et al., (2016) that collected data from high-risk populations. The intervention (knowledge sharing) effectively increased the basic knowledge of lung cancer risk factors and the ability to perform early lung cancer screening. The success of forming health cadres was evidenced by their ability to identify 93 Sampang residents who were at high risk of lung cancer. The findings of this study are in line with the study conducted in the working area of the Kakaskasen Health Center, North Tomohon Regency, Tomohon City, which found that there is a correlation between health cadres' knowledge and Posyandu service (Pakasi et al., 2016).

Previous community service activities that provided training for health cadres concluded that educational methods for the cadres have the beneficial effect of raising knowledge and skills in sharing knowledge regarding lung cancer with the public (Nurbaya et al., 2022). The knowledge of the health cadres is the main modality required in promoting health awareness. Cadres' knowledge may increase by participating training program

to maintain and early detect the disease progression according to their abilities, because the most important domain for shaping a person's behavior is their knowledge and cognitive abilities (Fazrin et al., 2021). According to Hamariyana et al., (2013), cadres who have better knowledge will do better compared to those who have low level of knowledge. This illustrates that the level of knowledge influences how cadres perform their duties.

In the future, the health cadres who have been formed and empowered are expected to have a role as a provider of education regarding lung cancer, helping to detect people who have high risk factors for lung cancer and people who have already suffered for lung cancer, assisting community health centers in guiding and motivating public to always carry out health examinations as early as possible in high risk populations. The subjects who included in high-risk factors will be followed up for further examination at health facilities. In brief, the formation of the health cadres will be able to initiate a social marketing intervention by increasing public awareness, promoting a healthier lifestyle, and encouraging early reporting of symptoms, which is crucial because if lung cancer is discovered at an earlier stage, when it is small and has not spread, it is more likely to be successfully treated.

## 4. CONCLUSION

The team has provided a counseling session for 30 health cadres in collaboration with the Camplong Sub-district Community Health Center health workers. The community service activity initiative aimed at early detection and screening of lung cancer was well received by the village government and the community, facilitating its successful execution. The post-test results showed that health cadres gained additional knowledge after counseling sessions regarding the danger of lung cancer and guidance for early detection based on scoring risk factors. The success of forming health cadres was evidenced by their ability to identify 93 Sampang residents at high risk of lung cancer. The subjects who included in high-risk factors will be followed up for further examination at health facilities. Hopefully, the established health cadres will be able to share knowledge and early detection of lung cancer with the people of Sampang Regency, allowing this program to be implemented regularly every month to provide optimal intervention.

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## CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

## REFERENCES

- Agatha, S. T. D., & Handayani, D. Y. (2022). The correlation between community health cadres knowledge and the role in preventing COVID-19 in Teluk Village. *Proceedings Series on Health & Medical Sciences*, 2, 98–104. <https://doi.org/10.30595/pshms.v2i.229>
- Ahmad, H., Alwi, F., & Hadi, A. (2023). Contribution of the role of health cadres in the prevention of stunting in toddlers. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 8(3), 1108–1116. <https://doi.org/10.30604/jika.v8i3.2483>
- Amin, Z., Jayalie, V. F., & Rajabto, W. (2017). Recent management of patients with advanced epidermal growth factor receptor mutation non-small cell lung cancer: Role of afatinib and lesson learned for developing countries. *Acta Med Indones*, 49, 79–88.
- Aristiyanto, R. & Harimurti, S. (2023). Health cadres establishment through Oral Dental Disease and Drug Use (DAGUSIBU) education in Srigading Village, Bantul. *Proceeding International Conference of Community Service: Society Empowerment Through Digital and Economic Transformation*, 1(1), 306–312.
- Dillner, J. (2019). Early detection and prevention. *Mol Oncol*, 13(3), 591–598. <https://doi.org/10.1002/1878-0261.12459>
- Fazrin, I., Anggraeni, S., Saputro, H., & Yalastyarini, E. A. (2021). *Edukasi gizi, tumbuh kembang, pijat anak menggunakan metode demonstrasi audiovisual pada kader masa pandemi COVID-19 (monograf)*. STRADA Press.
- Fitriyanti, D. (2022). Optimalisasi peran kader kesehatan dalam deteksi dini dan pencegahan kanker serviks pada masa pandemi COVID-19 di Wilayah Kelurahan Karang Ayu Kota Semarang. *Jurnal Pengabdian Perawat*, 1(1), 19–26
- Friska, D., Kekalih, A., Runtu, F., Rahmawati, A., Ibrahim, N. A. A., Anugrapaksi, E., Utami, N. P. B. S., Wijaya, A. D., & Ayuningtyas, R. (2022). Health cadres empowerment program through smartphone application-based educational videos to promote child growth and development. *Front. Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.887288>
- Global Cancer Observatory (GLOBOCAN). (2020a). Indonesia fact sheets 2020. *Global Cancer Observatory - IARC*. Retrieved November 27, 2023, from <https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact-sheets.pdf>
- Global Cancer Observatory (GLOBOCAN). (2020b). International agency for research on cancer WHO. *Global Cancer Observatory - IARC*. Retrieved November 25, 2023, from <https://gco.iarc.fr/today/data/factsheets/cancers/15-Lung-fact-sheet.pdf>
- Goodarzi, E., Sohrabivafa, M., Adineh, H., Moayed, L., & Khazaei, Z. (2019). Geographical distribution global incidence and mortality of lung cancer and its relationship with the Human Development Index (HDI): An ecology study in 2018. *WCRJ*, 6, e1354. [https://doi.org/10.32113/wcrj\\_20197\\_1354](https://doi.org/10.32113/wcrj_20197_1354)
- Hamariyana, Syamsianah, A., & Winaryati, E. (2013). Hubungan pengetahuan dan lama kerja kader dengan ketrampilan kader dalam menilai kurva pertumbuhan balita di posyandu Kelurahan Tegal Sari Kecamatan Candisari Kota Semarang. *Jurnal Gizi Universitas Muhammadiyah Semarang*, 2(1), 40–48.
- Jayalie, V. F., William, A., Shelly, & Irawan, C. I. (2016). The role of metformin as an inhibitor Insulin-like Growth Factor-1 Receptor (IGF-1R), Epidermal Growth Factor Receptor (EGFR) and mammalian Target of Rapamycin (mTOR) pathways in lung cancer treatment. *Cermin Dunia Kedokteran*, 43(6), 416–420.
- Juwita, L. & Prabasari, N. A. (2023). Pemberdayaan peran kader melalui edukasi kesehatan deteksi dini kanker serviks melalui metode reproductive organ self-examination (rose). *Bubungan Tinggi Jurnal Pengabdian Masyarakat*, 5(3), 1253–1260.
- Lestari, D., Dewi, S., & Armerinayanti, N. (2021). Strengthening the role of cadres and village midwives to support the cervical cancer awareness movement in Puhu Payangan Village, Gianyar, Bali, Indonesia. *Jurnal Pengabdian kepada Masyarakat (Indonesian Journal of Community Engagement)*, 7(1), 42–47. <http://dx.doi.org/10.22146/jpkm.43355>
- Lindacher, V., Curbach, J., Warrelmann, B., Brandstetter, S., & Loss, J. (2018). Evaluation of empowerment in health promotion interventions: A systematic review. *Eval Health Prof*, 41, 351–92. <https://doi.org/10.1177/0163278716688065>
- Mediani, H. S., Hendrawati, S., Pahria, T., Mediawati, A. S., & Suryani, M. (2022). Factors affecting the knowledge and motivation of health cadres in stunting prevention among children in Indonesia. *J Multidiscip Healthc*, 15, 1069–1082. <https://doi.org/10.2147/JMDH.S356736>
- Menkes RI. (2023). Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/MENKES/1438/2023 tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Kanker Paru. *Kementerian Kesehatan Republik Indonesia*.

- Nurbaya, Haji, S. R., & Irwan, Z. (2022). Peningkatan pengetahuan dan keterampilan kader posyandu dalam memperbanyak produksi asi melalui teknik swedish massage. *Jurnal Bagimu Negeri*, 6(1), 29–37.
- Pakasi, A., Korah, B., & Imbar, H. (2016). Hubungan pengetahuan dan sikap kader kesehatan dengan pelayanan posyandu. *Jurnal Ilmiah Bidan*, 4(1), 92118.
- Patila, C. Y. & Sumargi, A. (2017). Pengetahuan kanker serviks pada wanita dewasa awal berdasarkan tingkat kesadaran terhadap kesehatan. *Personifikasi*, 8(1), 1–9.
- Sari, C. Y. I., Yunus, F., & Sjahrudin, E. (2019). Proporsi pasien kanker paru dengan riwayat keterlambatan diagnosis akibat didiagnosis sebagai tuberkulosis paru. *Jurnal Respirologi Indonesia*, 39(2), 92–102.
- Schiffman, J. D., Fisher, P. G., & Gibbs, P. (2015). Early detection of cancer: Past, present, and future. *American Society of Clinical Oncology Educational Book*, 35, 57–65.
- Smith, R. A., Andrews, K., Brooks, D., DeSantis, C. E., Fedewa, S. A., Lortet-Tieulent, J., Manassaram-Baptiste, D., Brawley, O. W., & Wender, R. C. (2016). Cancer screening in the United States, 2016: A review of current american cancer society guidelines and current issues in cancer screening. *CA: A Cancer Journal for Clinicians*, 66(2), 96–114. <https://doi.org/10.3322/caac.21336>
- Widjaja, S. S., Rusdiana, & Savira, M. (2019). Education, awareness, early detection, and myths about cancer. *Indian Journal of Community and Family Medicine*, 5(2), 114–116.
- Williams, L. B., Looney, S. W., Joshua, T., McCall, A., & Tinggen, M. S. (2021). Promoting community awareness of lung cancer screening among disparate populations: Results of the cancer-community awareness access research and education project. *Cancer Nursing*, 44(2), 89–97. <https://doi.org/10.1097/NCC.0000000000000748>
- World Health Organization (WHO). (2023). Promoting cancer early diagnosis. *World Health Organization*. Retrieved December 4, 2023, from <https://www.who.int/activities/promoting-cancer-early-diagnosis>