



The Impact of Community Empowerment Programs on Oral Health Education for Knowledge Improvement in the Elderly

Nurina Febriyanti Ayuningtyas¹ Adiastuti Endah Parmadiati¹ Fatma Yasmin Mahdani¹
 Riyan Iman Marsetyo¹ Afryla Femilian² Maslah Siregar²

¹Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

²Oral Medicine Specialist Study Programme, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

Address for correspondence Nurina Febriyanti Ayuningtyas, PhD, Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo 47, Surabaya 60132, Indonesia (e-mail: nurina-ayu@fkg.unair.ac.id).

J Health Allied Sci^{NU} 2023;13:60–63.

Abstract

Objective This study aims to assess whether community empowerment as a health promotion program can improve the knowledge of the elderly and develop self-awareness about their oral health. The elderly population has increased in number and needs special attention, especially regarding the improvement of hygiene and health. Community empowerment is a type of health promotion program that can take the form of counseling and providing knowledge about oral health to the elderly.

Materials and Methods Participants are elderly aged 60 years or older. Counseling was done by oral medicine specialists and residents to provide knowledge about oral health problems. Assessment of knowledge improvement was done using pretest and posttest in a written questionnaire.

Statistical Analysis The Shapiro–Wilk test followed by the Wilcoxon test was used to compare the difference before and after counseling.

Results From a total of 38 elderly included in this study, 29 (76.32%) showed an improved score in posttest compared with pretest. Statistical analysis showed a significant difference between pretest and posttest scores of study participants ($p < 0.005$).

Conclusion Counseling in empowerment programs can help the elderly improve their knowledge about oral health, so that improvements can be expected to be followed by the development of self-awareness in the future.

Keywords

- knowledge
- self-awareness
- elderly
- oral mucosal health

Introduction

Aging as a physiologic process of human beings is a complex biological phenomenon resulting from genetic and environmental factors.¹ According to the World Health Organization (WHO), the worldwide population is increasing at an annual

rate of 1.7%, while the population aged 65 years or older is increasing more rapidly at a rate of 2.5%.^{2,3} Globally, it is predicted the number of elderly aged 60 years or older will be 2 billion in 2050, two times greater than the population in 2019.⁴ This population aging is influenced by many factors,

article published online
May 29, 2022

DOI <https://doi.org/10.1055/s-0042-1748492>.
ISSN 2582-4287.

© 2022. Nitte (Deemed to be University). All rights reserved.
This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial-License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)
Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

including improvement in public health and advances in medicine.⁵

With global changes in life expectancy, the elderly population has increased in number, especially in developed countries.⁶ Indonesia, one of the developed countries, is the fourth most populous country in the world and is heading toward an aging population.^{5,7} In 2017, there were approximately 22 million elderly in Indonesia. This number is estimated to increase to 48 million by 2035 with the elderly population accounting for 16% of the total.⁷ Increases in this population need special attention, especially regarding the improvement of hygiene and health. WHO states that health includes physical, mental, and social well-being. It is, therefore, important to improve health not only in life-saving aspects but also in quality of life.⁸

Dental and oral health contribute physically and psychologically to quality of life.⁹ Elderly populations face many obstacles to receiving oral health care, such as low education levels, low-income levels, lack of dental insurance, poor health, and their belief that they do not need any oral treatment.¹⁰ Less self-awareness about oral health problems can lead to nescience that those problems can be prevented or treated.¹¹ Therefore, it is important to assess elderly knowledge related to oral health.

Public health centers seek to overcome the oral health problems of the elderly through health promotion programs. Community empowerment is a type of health promotion program that takes the form of counseling and providing knowledge about oral health to the elderly.¹² Community empowerment is a process to increase the community's capacity to utilize both human and natural resources for their welfare.¹³

As an inevitable part of the lifecycle, every elderly person should prepare for the aging process and aging-related problems, especially in the oral cavity. If oral health of the elderly can be maintained properly, it can support general health and improve quality of life so that demographic bonuses can be utilized maximally.⁴ Therefore, this research aims to assess whether community empowerment as a health promotion program can improve elderly knowledge and develop self-awareness about oral health and aging-related oral health problems.

Materials and Methods

This study was a quasi-experimental study with a one-group pretest–posttest design conducted in the Lestari and Flamboyant Geriatric Communities fostered by the Jagir Public Health Center, Surabaya, Indonesia. This study was conducted in September 2021, in the form of a community empowerment program to share knowledge about oral health and aging-related oral health problems. The Jagir Public Health Center had previously collaborated with the Universitas Airlangga Faculty of Dental Medicine on several oral health programs including education, research, and community development.

Participants of this study were elderly aged 60 years or older from the geriatric community mentioned above. The

community empowerment target to be achieved was an increase in awareness, understanding, and knowledge about the importance of maintaining oral health and hygiene in the elderly. To achieve this target, the authors composed counseling material in the form of an educative booklet distributed to all elderly who participated in the program. The drafting process was done by an oral medicine specialist from the Faculty of Dental Medicine at Universitas Airlangga and involved dentists from the Jagir Public Health Center.

Counseling was done by an oral medicine specialist and resident from the Faculty of Dental Medicine at Universitas Airlangga. Evaluation of elderly knowledge and improvement was conducted pretest and posttest in a written questionnaire consisting of 10 questions related to material from counseling and the educative booklet. Elderly patients who needed help in filling in the questionnaire were assisted by an oral medicine resident.

Data collection procedures for this study were the scoring of pretest and posttest questionnaires. Data obtained will be presented descriptively in number and analyzed statistically to compare the score between pretest and posttest using IBM SPSS version 26. Data normality was tested using the Shapiro–Wilk test with the result that the data was not normally distributed ($p < 0.05$), therefore follow-up analysis was done using a nonparametric test. Then, the Wilcoxon test was performed to determine if there was a statistically significant difference between pretest and posttest scores.

Results

A total of 50 participants from two geriatric communities joined this counseling program. Of those, 12 participants were excluded from the study because they were under 60 years old. Therefore, a total of 38 elderly aged 60 years or older were included in this study. The demographic profile of the elderly included in data analysis is presented in ►Table 1.

The results of the pretest and posttest are listed in ►Table 2, showing that 29 (76.32%) elderly showed an improvement in knowledge after being given counseling about oral health. Only two (5.26%) elderly had a lower posttest score and seven (18.42%) elderly showed no score improvement. Statistical comparison showed that there was a significant difference between participants' pretest and posttest scores ($p = 0.000$).

Discussion

The aging process is an inevitable part of human life; it will occur in every individual in the global population and life expectancy will increase significantly.^{14,15} Elderly are people aged 60 years or older. They are considered “elderly” because this stage of the aging process causes a decline in physical and physiological abilities.¹⁶ Those declined abilities cause limitations in maintaining personal hygiene. Furthermore, personal, social, and cultural factors also play a vital role in personal hygiene behavior, including oral care. If oral care is not done properly, it will cause oral mucosal disorders and other oral-related diseases.⁸

Table 1 Demographic profiles from the elderly included in this study

Demographic aspect	Number of subjects	Percentage
Sex		
Male	7	18.42
Female	31	81.58
Age		
60–74 years old	29	76.32
75–90 years old	9	23.68
> 90 years old	0	0
Geriatric community		
Lestari	27	71.05
Flamboyan	11	28.95
Total subjects	38	

Oral health in the elderly is considered a basic need that is increasingly neglected with advancing age, debilitation, and limited mobility.² A study by Thalib et al showed that there was a significant relationship between oral hygiene status and individual knowledge about oral hygiene. A healthy way of life in maintaining oral health was formed from a good education. Even adequate knowledge will lead to good oral health status so that the risk of developing caries and mucosal disease can be suppressed.⁹ A survey study conducted by Abdat and Jernita found that the elderly still possess poor knowledge about oral health and that this level of knowledge has a strong correlation with poor oral health status.¹⁷ Therefore, improving knowledge about oral health in the elderly becomes an important aspect to be developed in the aging population.

In this study, a community empowerment program on oral health education was conducted with 38 elderly from two geriatric communities. The success indicator of this program was the increasing knowledge of the elderly, measured through pretest and posttest questionnaires. During the implementation of the program, educational counseling was conducted with a demonstration method by two speakers, which participants could follow with guidance from the booklet given to them before. Participants gave positive feedback and actively asked questions of the speaker. These indicated that participants followed the program well.

The result of this study was that 29 elderly (76.32%) had an improvement in their posttest score compared with their

pretest score ($p = 0.000$). This can be interpreted as showing how community empowerment done in counseling methods can significantly improve elderly knowledge about oral health. This study is in line with a study from Berniyanti et al that dental and oral health education plays a significant role in improving elderly knowledge about tooth brushing methods.¹² Both studies included the elderly and used the same method in transferring knowledge from speakers to participants. The only difference was the topics and outcomes of the study.

Research on the effect of educational interventions on improving the quality of life of the elderly has now been performed extensively. Each study is different from other studies so it is difficult to do a direct comparison; nevertheless, each study can support others in terms of outcomes. One study from Shokouhi et al was conducted to determine the impact of educational intervention on oral health-related quality of life of the elderly using a randomized controlled trial study design. The results showed that the educational program alongside therapeutic interventions had a positive impact, which improved the oral health-related quality of life in the elderly ($p < 0.001$).¹⁸

Oral health education is a part of health promotion programs in public health centers, which include various targets for different age groups. Health promotion strategies for the elderly have three basic outcomes: maintaining and increasing functional capacity, improving self-care, and stimulating individual social networks.^{13,19,20} The limitation of this study is the small number of participants and evaluation method. This study only used pretest and posttest methods to assess knowledge improvement while other factors may influence the knowledge status of each elderly person. It is also not possible to measure the development of self-awareness. For further research, the authors suggest thorough research involving all variables affecting elderly knowledge. Overall, despite the existing limitations, this study concludes that educational counseling in empowerment programs can help the elderly improve their knowledge about oral health so that improvements can be expected to be

Table 2 Pretest and posttest results from study participants

Ranks	Number of subjects	p-Value
Positive ranks ^a	29 (76.32%)	0.000
Negative ranks ^b	2 (5.26%)	
Ties ^c	7 (18.42%)	
Total subjects	38 (100%)	

^aPosttest > pretest.

^bPosttest < pretest.

^cPosttest = pretest.

followed by the development of self-awareness in the future.

Funding

This study was funded by the Faculty of Dental Medicine at Universitas Airlangga in Rencana Kegiatan Anggaran Tahunan (RKAT), 2021, with Decree Number 388/UN3/2021.

Conflict of Interest

None declared.

Acknowledgment

None.

References

- Liana I, Nur A, Arbi A, et al. The effect of the implementation of the education on the knowledge and status of dental cleanliness in elderly in Darul Imarah Aceh Besar District, Indonesia. *Open Access Maced J Med Sci* 2021;9:1–5
- Eman Shokry A, Rehab Adel M, Rashad AEA. Educational program to improve quality of life among elderly regarding oral health. *Futur Dent J* 2018;4(02):211–215
- Mohsen MM, Aelm HA, Elsayed DM, Abd El-Rhaman ME. Quality of dental care among elderly in Benha city. *J Nurs Heal Sci* 2017;6(04):64–76
- Basrowi RW, Rahayu EM, Khoe LC, Wasito E, Sundjaya T. The road to healthy ageing: what has Indonesia achieved so far? *Nutrients* 2021;13(10):3441
- Agustina D, Chrismawaty B, Hanindriyo L. Hyposalivation is the main risk factor for poor oral health status in Indonesian elderly. *J Int Oral Health* 2021;13(01):60–64
- Masood M, Newton T, Bakri NN, Khalid T, Masood Y. The relationship between oral health and oral health related quality of life among elderly people in United Kingdom. *J Dent* 2017;56:78–83
- Utomo A, Mcdonald P, Utomo I, Cahyadi N, Sparrow R. Social engagement and the elderly in rural Indonesia. *Soc Sci Med* 2019; 229:22–31
- Paramita WK. Tinjauan Sistematis: Pengaruh Perilaku Kebersihan dan Perawatan Kesehatan Lansia. *J Promkes Indones J Heal Promot Heal Educ* 2021;9(01):69–78
- Thalib B, Rasyid R, Asmawati RH. The effect of oral health status on elderly quality of life in Makassar District, Indonesia. *Syst Rev Pharm* 2020;11(11):14–18
- Kiyak HA, Reichmuth M. Barriers to and enablers of older adults' use of dental services. *J Dent Educ* 2005;69(09):975–986
- McQuistan MR, Qasim A, Shao C, Straub-Morarend CL, Macek MD. Oral health knowledge among elderly patients. *J Am Dent Assoc* 2015;146(01):17–26
- Berniyanti T, Kusumo AD, Bramantoro T, Wening GRS, Palupi R. Dental and oral health education for elderly age group: full and partial edentulous teeth brushing method. *J Int Oral Health* 2019; 11(02):104
- Wibowo A, Arsyilviasari R, Meilena T, et al. Dental and oral health empowerment program for elderly using BULAN KESGILUT Book. *Indones J Dent Med* 2020;3(01):1–3
- Lionakis N, Mendrinis D, Sanidas E, Favatas G, Georgopoulou M. Hypertension in the elderly. *World J Cardiol* 2012;4(05):135–147
- Liu YCG, Lan SJ, Hirano H, et al. Update and review of the gerodontology prospective for 2020's: linking the interactions of oral (hypo)-functions to health vs. systemic diseases. *J Dent Sci* 2021;16(02):757–773
- Anorital A. Morbiditas dan Multi Morbiditas Pada Kelompok Lanjut Usia di Indonesia. *J Biotek Medisiana Indones* 2015;4(02):77–88
- Abdat M, Jernita T. Oral health knowledge and attitude, oral health status in elderly and its impact on general well-being. *Dentika Dent J* 2018;21(01):21–28
- Shokouhi E, Mohamadian H, Babadi F, Cheraghian B, Araban M. Improvement in oral health related quality of life among the elderly: a randomized controlled trial. *Biopsychosoc Med* 2019; 13(01):31
- Bramantoro T, Berniyati T, Wening GRS, Sosiawan A, Palupi R, Zamzam A. Self-made herbal mouthwash training in elderly community as an empowerment program for improving oral hygiene. *J Int Oral Health* 2019;11(07):37–39
- Lindström B. Workshop salutogenesis and the future of health promotion and public health. *Scand J Public Health* 2018;46 (20_suppl):94–98