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Application of Social Cognitive Theory to Promote Healthy Behavior Among the Elderly at Integrated Health Post for Elderly

Agil Rafi'ah Afandi[1)], Argyo Demartoto[2)], Bhisma Murti[1)]

[1)]Master's Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Social and Political Science, Univeristas Sebelas Maret

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ABSTRACT

Background: The results of a survey by the Central Statistics Agency in 2021 reported that as many as 42.22% of the elderly population in Indonesia experience health problems. One of the factors that determines healthy behavior in the elderly is implementing healthy behavior. This study aims to examine the application of social cognitive theory as a determinant of healthy behavior of the elderly in Sukoharjo Regency, Central Java.
Subjects and Method: This was a cross-sectional study carried out at integrated health post (posyandu) in Grogol, Sukoharjo Regency, Central Java, in June-July 2024. A sample of 200 elderly was selected purposively. Five villages were randomly selected. From each village, 6 primary strata Posyandu, 6 intermediate strata Posyandu, 6 purnama strata Posyandu, and 7 independent Posyandu were chosen. Then, from each selected Posyandu, 8 elderly individuals were randomly selected. The dependent variable is healthy behavior in the elderly. The independent variables are a number of constructs in social cognitive theory, namely observational learning, outcome expectation, outcome expectancy, reinforcement, and self-efficacy. Data were analyzed by multiple linear regression.
Results: Healthy behaviors increased with observational learning (b= 0.17; 95% CI= 0.12 to 0.43; p= 0.001), outcome expectation (b=0.24; 95% CI= 0.02 to 0.473; p= 0.036), outcome expectancy (b= 0.36; 95% CI= 0.05 to 0.68; p= 0.025), reinforcement (b= 0.36; 95% CI= 0.10 to 0.84; p= 0.013), and self efficacy (b= 0.55; 95% CI= 0.19 to 0.91; p= 0.003).
Conclusion: Healthy behavior in the elderly is positively associated with observational learning, outcome expectation, outcome expectancy, reinforcement, and self efficacy.

Keywords: social cognitive theory, observational learning, outcome expectation, self-efficacy

Correspondence:
Agil Rafi'ah Afandi. Master's Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: afiafandi22@gmail.com. Mobile: +6285-274800253.

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BACKGROUND

Regulation of the Minister of Health of the Republic of Indonesia Number 67 of 2015 describes elderly or elderly individuals as people who are 60 years old or older. Advances in health services, birth rate control, increased life expectancy, and a decrease in mortality rates have led to an increase in

the number and proportion of the elderly. Globally, there were 727 million individuals aged 65 and over in 2020 according to UN data, and it is estimated that this number will double to 1.5 billion by 2050. In the last five decades, the percentage of the elderly population in Indonesia has increased from 4.5% in 1971 to approximately 10.7% in 2020, and is expected to continue to increase to reach 19.9% in 2045 (Central Statistics Agency, 2021; Muzayanah et al., 2022).

In 2021, there are eight provinces that have reached demographic conditions with the proportion of the elderly population exceeding ten percent, signaling a transition to an older population. Among them, Central Java is third with a percentage of the elderly population of 14.7%. In the context of gender, there are more elderly women than men, with a ratio of 52.32% women to 47.68% men. Judging from the distribution of housing, the number of elderly living in urban areas exceeds those in rural areas, with a ratio of 53.75% in cities compared to 46.25% in villages (Central Statistics Agency, 2021).

The welfare condition of elderly individuals can be shown through their health status. According to Law of the Republic of Indonesia Number 36 of 2009 concerning Health, health is defined as a condition of well-being from physical, mental, spiritual, and social aspects, which allows a person to contribute productively in social and economic life. In 2021, it was found that 42.22% of the elderly population experienced health problems in the previous month, with half of them (22.48%) experiencing disturbances in carrying out daily activities or being sick. Around 81.08% of the elderly chose to overcome their health problems independently, while 45.42% chose to seek outpatient treatment. Meanwhile, only 5.26% of the elderly have needed inpatient care over the past year. Given the vulnerability of health in old age, it is very important for the elderly to live a healthy lifestyle, such as regularly exercising, not smoking, routinely controlling blood pressure, maintaining dietary patterns, and so on.

Seniors are advised to adopt healthy behaviors to improve their health and avoid chronic diseases. These healthy behaviors include exercising regularly, quitting smoking habits, maintaining diet, regularly doing health checks, and increasing learning activities and participation in social activities. This is important to reduce the risk of death from various causes and heart diseases, reduce the incidence of fractures, falls, decreased thinking ability, dementia, Alzheimer's disease, and depression (Chia et al., 2023). Overall, maintaining healthy living habits in the elderly is important to maintain their health, body function, and well-being. Therefore, maintaining healthy living habits can help the elderly in achieving an optimal quality of life (Houston et al., 2023; Hughes et al., 2020).

Promoting and maintaining healthy behavior in the elderly is a challenge in the field of public health, Facing this situation, the importance of applying health promotion theory in health intervention efforts is becoming greater and greater to improve the welfare of the elderly. One of the theories that has been widely applied in studies and interventions to promote healthy behaviors is Social Cognitive Theory (SCT). The SCT provides a framework for understanding the complex interactions between personal experiences, behaviors, and environmental factors that influence behavior change (Islam et al., 2023; Manjarres et al., 2020). This approach can help build a more comprehensive understanding of health behaviors and provide opportunities for the variables of observational learning, outco-

me expectation, outcome expectancy, reinforcement, and self-efficacy to achieve behavior change.

SCT can help older individuals develop the skills and beliefs necessary to engage in healthy behaviors, such as exercising regularly, quitting smoking, and maintaining a balanced diet. This approach can result in improved physical and mental health, reduced healthcare costs, and increased independence among elderly individuals (Baird et al., 2021; Moghaddam et al., 2023). The study in Iran also found that there was a significant association between the constructs of SCT (outcome expectation, outcome expectancy, reinforcement, and self-efficacy) and healthy behavior scores. In addition, the mentioned constructs can predict 0.47% variance of healthy behavior (Borhaninejad et al., 2017).

In Sukoharjo Regency, the number of elderly individuals reached 120,565 people. (BPS, 2023). In order to improve the quality and health status of the elderly, the Government has initiated the establishment of the Elderly Posyandu. This initiative aims to enrich knowledge, improve attitudes, encourage healthy behaviors, and generally improve the health of the elderly (Putri, 2018). However, unfortunately, in Sukoharjo, the use of Posyandu for the Elderly is still not optimal to improve healthy behavior in elderly individuals (Ramona et al., 2023). In particular, there are various factors that influence the decision of the elderly to actively participate in the Posyandu for the Elderly and implement healthy behaviors, starting from awareness that leads to the formation of intentions and then behavior. The use of SCT in this study aims to explore the impact of individual attitudes, social influences, and self-efficacy on their motivation to act. Based on this background, the researcher is interested in studying how SCT can affect healthy behavior in the elderly in Grogol District, Sukoharjo Regency, Central Java.

SUBJECTS AND METHOD

1. Study Design

The type of study used is a quantitative study with an observational method with a cross-sectional study. This study was conducted in Grogol District, Sukoharjo Regency, Central Java. The study was conducted in June-July 2024.

2. Population and Sample

The population in this study is the elderly aged 60 years and above and residing in Grogol District, Sukoharjo Regency. The number of posyandu used in the study was 25 elderly posyandu. Each posyandu will take 8 elderly subjects. The sampling technique is fixed-disease sampling.

3. Study Variables

The dependent variable is healthy behavior in the elderly. The independent variables were observational learning, outcome expectation, outcome expectancy, reinforcement, and self-efficacy.

4. Operational Definition of Variables

Healthy Behavior in the Elderly: healthy behavior aims to improve their health and avoid chronic diseases. These healthy behaviors include exercising regularly, quitting smoking, maintaining a diet, regularly doing health checks, and increasing learning activities and participation in social activities. Data were taken with a questionnaire with a continuous scale.

Observational learning: observational *learning* is defined as learning to perform new behaviors with interpersonal exposure or the media that displays them. Data were taken with a questionnaire with a continuous scale.

Outcome expectation: Beliefs about the outcome of a person's behavior, based on past experience and knowledge of the relationship between their actions and the

consequences produced. Data were taken with a questionnaire with a continuous scale.

Outcome Expectancy: an individual's belief in their outcome or ability to achieve a specific goal. Data were taken with a questionnaire with a continuous scale.

Self Efficacy: An individual's belief in their ability to successfully perform a specific behavior or action. The data were collected using a questionnaire with a continuous scale.

Reinforcement: reinforcement refers to a response both internally and externally to a person's behavior that affects the possibility of continuation or cessation of that behavior. Data were taken with a questionnaire with a continuous scale.

5. Study Instruments

The study instrument used for data collection is using a questionnaire.

6. Data analysis

Univariate analysis was conducted with the aim of explaining individual characteristics, such as respondents' age, education level, or score on a test, without involving comparison with other variables. The next analysis is multivariate which uses a double linear regression analysis model with a multilevel approach.

7. Research Ethics

Study ethics including informed consent, anonymity, and confidentiality, are handled with care during the study process. The approval letter for the study ethics permit was obtained from the Study Ethics Committee of Dr. Moewardi Hospital, Surakarta city on June 10, 2024 with the number 832/III/HREC/2024.

RESULTS

1. Sample Characteristics

Univariate analysis aims to be able to see an overview of the distribution and frequency of the characteristics of the respondents and all the variables studied, the results of the studies that have been carried out are the results of the distribution of respondents based on variables.

Tabel 1. Analisis univariat (category data)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	82	41
	Female	118	59
Levels	Primary	42	21
	Intermediate	54	27
	Senior	48	24
	Self-sufficient	56	28
Education	Uneducated	11	5.50
	Elementary School	27	13.50
	Junior Highschool	117	58.50
	Senior Highschool	24	12.00
	College	21	10.50

Table 1 shows that the characteristics of the research subjects obtained by 200 participants based on gender are 82 males (41.00%) and 118 females (59.00%). Furthermore, for research subjects who do not work, there are 29 people (14.43%) and research subjects who work as many as 172 people (85.57%). Based on the level of education with the research subjects not attending school as many as 11 people (5.50%), elementary level as many as 27 people (13.50%), junior high school level as many as 117 people (58.50%), high school level as many as 24 people (12.00%), and

university level as many as 21 people (10.50%).

Table 2. Univariate analysis of sample characteristics (continuous data)

Variable	N	Mean	SD	Min.	Max.
Healthy behavior of the elderly	200	11.14	3.80	0	16
Obsevational learning	200	10.84	3.08	0	14
Outcome expectation	200	7.59	2.12	1	10
Outcome expectancy	200	5.00	1.50	1	6
Reinforcement	200	6.77	1.40	3	8
Self efficacy	200	4.71	1.63	0	7
Age	200	72.30	8.81	60	92

Table 2 shows that the healthy behavior in elderly have an average value of 11.14 (Mean= 11.14; SD= 3.80). Observational learning had an average value of 10.84 (Mean = 10.84; SD= 3.08). The outcome expectation had an average value of 7.59 (Mean = 7.59; SD= 2.12).

Outcome expectancy had an average value of 5.00 (Mean = 5.00; SD= 1.50). The reinforcement had an average value of 6.77 (Mean= 6.77; SD= 1.40. Self-efficacy variable had an average value of 4.71 (Mean= 4.71; SD= 1.63). Mean of age was 72 years old (Mean= 72.30; SD= 8.81).

2. Multivariate Analysis

Table 3 shows the results of a double linear regression analysis of a number of predictors of healthy behavior in the elderly in posyandu service sites.

Table 3. Multivariate multiple linear regression analysis of the application of social cognitive theory on factors influencing the healthy behavior of the elderly.

Independent Variables	Regression coefficients (b)	CI 95%		p
		Lower Limit	Upper Limit	
Obsevational learning	0.17	0.12	0.12	0.001
Outcome expectation	0.24	0.02	0.47	0.036
Outcome expectancy	0.36	0.05	0.68	0.025
Reinforcement	0.36	0.10	0.84	0.013
Self efficacy	0.19	0.19	0.91	0.003
N observasi	200			
Adjusted R^2	40.84%			
p<0.001				

Table 3 shows that observational learning and, (b= 0.17; 95% CI= 0.12 to 0.43; p= 0.001), outcome expectation (b= 0.24; 95% CI= 0.02 to 0.473; p= 0.036), outcome expectancy (b= 0.36; 95% CI=0.05 to 0.68; p= 0.025), reinforcement (b= 0.36; 95% CI= 0.10 to 0.84; p= 0.013), and self efficacy (b= 0.55; 95% CI= 0.19 to 0.91; p= 0.003) were positively associated with healthy behavior in the elderly.

DISCUSSION

Healthy behavior in the elderly is influenced by observational learning. This is supported by a study conducted by Nugrahadi (2021), which reported that among both young elderly (65–75 years old) and older elderly (over 75 years old) Koreans, behaviors such as smoking, drinking, and exercising significantly affect their quality of life. Similarly, Budiono (2021) and Sahinoz (2020) emphasized that maintain-

ing a healthy lifestyle, such as consuming adequate and balanced nutrition, staying physically active, and engaging in social relationships, is essential for staying healthy and feeling well. Timely health actions are also crucial in supporting overall well-being.

There is a positive and statistically significant relationship between outcome expectations and healthy behavioral patterns in the elderly. This finding aligns with a study by Xiao et al. (2024), which revealed that elderly individuals who regularly engage in leisure-time activities have a 19% lower risk of death compared to those who participate little or not at all.

Similarly, Marczak & Yawson et al. (2021) explained that expectancy refers to the perceived likelihood that effort will lead to high performance outcomes—individuals tend to exert more effort when they believe that achieving a specific goal is probable. Outcome expectancy suggests that a person is motivated to act in a certain way based on the anticipated value of the outcome. As emphasized by Wibowo et al. (2024), motivation to adopt healthy behaviors among the elderly is influenced by how strongly they believe their actions will lead to the desired results.

Reinforcement in this study shows a positive and statistically significant relationship with healthy behavior in the elderly. This finding is in line with the study by Lestari (2023), which describes reinforcement as a process that encourages specific behaviors, making it more likely for positive behaviors to be repeated and strengthened over time. In other words, reinforcement plays a key role in promoting and sustaining desirable behaviors by providing positive feedback that motivates individuals to continue engaging in those behaviors.

Self-efficacy in this study showed a positive and statistically significant relationship with healthy behavior among the elderly. This finding is consistent with the study by Siahaan (2022), which suggests that self-efficacy enhances an individual's confidence in their ability to achieve better health outcomes through their previous health behaviors. Furthermore, self-efficacy reflects a person's enthusiasm and belief in their capacity to improve health and manage challenges, particularly in the context of elderly health (Siahaan, 2022).

The elderly Posyandu aims to enhance the application of Social Cognitive Theory (SCT) in promoting healthy behaviors among the elderly, particularly at the Grogol District Health Center in Sukoharjo Regency, Central Java. SCT supports older adults in developing the skills and self-beliefs needed to adopt and maintain healthy behaviors, such as regular physical activity, smoking cessation, and balanced nutrition. This approach can lead to improved physical and mental health, reduced healthcare costs, and greater independence among the elderly (Baird et al., 2021; Moghaddam et al., 2023). The integrated health post plays a vital role in monitoring and supporting a range of activities to ensure quality services for the elderly.

AUTHOR CONTRIBUTION

All authors have made significant contributions to the data analysis and preparation of the final manuscript

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This study is self-funded.

CONFLICT OF INTEREST

There was no conflict of interest in this study.

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