**RESEARCH ARTICLE**

# The Effectiveness of Health Education in The Waiting Room of Pensioners Bank in Improving Elderly Health Perspective, Behavior and Morbidity

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***Abstract***

*Elderly need intensive exposure to health education to recognize and prevent diseases, like a degenerative and infectious disease. Any chance when elderly gather and spend significant time, like 30-60 minutes of waiting time for withdrawing pension money in the bank can be utilized as an opportunity to deliver health education message. This initiated collaboration among pension bank and general practitioners to perform specific health education program to elderly in their waiting room. This study investigates how health education and consultation program in the pension bank would be useful to change elderly health perspective, behavior, and morbidity. A cross-sectional comparative study was conducted to 438 elderlies in 10 cities of 14 pension bank branches in Indonesia in 2014-2015. We divided them into two groups: health education participants (n=345) and non-participants (n=93) to compare their health perspective, behavior, and morbidity after six months of education exposure. Elderly perspective on healthy lifestyle was elicited using a set of 11 questions that were graded on a Likert scale of 1-5 where one = less important to 5 = most important. We also recalled whether they conducted active lifestyle and had a history of illness in the last three months. Participants group had a significant increase in health perspectives, especially about the importance of regular health checking and maintaining a healthy diet (p<0.05). They also had fewer case of chronic illnesses (p=0.01, OR 0.51 IK95% 0.30-0.89). Their active lifestyle was also increased but not significant (p=0.164). Health education in the waiting room of pension bank was proven effective to improve health perspective and decrease long term illnesses in the elderly. With standardized education module and cooperation with the trained health educator, this approach of optimizing queuing time in the waiting room of pension bank can be applied to intensify access to health education for elderly.*
***Keywords**: health education, elderly, morbidity, health behavior.*

# Efektivitas Edukasi Kesehatan di Ruang Tunggu Bank dalam Meningkatkan Persepsi Kesehatan dan Perilaku serta Menurunkan Morbiditas Lansia

***Abstrak***

*Lanjut usia (lansia) memerlukan edukasi kesehatan intensif sehingga dapat mengenali serta mencegah penyakit degeneratif dan infeksi. Kesempatan lansia berkumpul dan menghabiskan waktu bersama, seperti menunggu di bank 30-60 menit saat pengambilan uang pensiun dapat digunakan untuk edukasi kesehatan. Hal tersebut menginisiasi kerja sama antara bank dengan perhimpunan dokter umum untuk menerapkan program edukasi kesehatan di ruang tunggu bank. Studi ini meneliti efektivitas edukasi dan konsultasi kesehatan di bank dalam mengubah persepsi kesehatan dan perilaku lansia, serta menurunkan morbiditasnya. Studi potong lintang komparatif dilakukan pada 438 orang lansia di 10 kota di 14 cabang bank di Indonesia tahun 2014-2015. Subyek dibagi dua grup: lansia yang berpartisipasi dalam edukasi kesehatan (n=345) dan tidak berpartisipasi (n=93) untuk membandingkan persepsi, perilaku, dan riwayat penyakit 6 bulan pasca edukasi kesehatan. Persepsi lansia tentang hidup sehat dan aktif dianalisis menggunakan 11 pertanyaan dengan gradasi skala Likert 1-5 dari kurang penting sampai paling penting. Lansia juga ditanyakan mengenai penerapan hidup sehat aktif dan apakah memiliki riwayat penyakit selama 3 bulan terakhir. Kelompok lansia yang berpartisipasi mengalami peningkatan persepsi pentingnya pemeriksaan kesehatan secara teratur dan mengatur pola makan (p<0,05) dan penurunan riwayat penyakit kronik (p=0,01; RO 0,5 IK95% 0,30-0,89). Gaya hidup sehat meningkat namun tidak signifikan (p=0,164). Edukasi lansia di ruang tunggu bank pensiun efektif meningkatkan persepsi kesehatan dan menurunkan morbiditas penyakit kronik. Dengan modul edukasi terstandar dan penyuluh kesehatan yang terlatih, pendekatan optimalisasi waktu menunggu di bank dapat diterapkan sebagai contoh model untuk meningkatkan akses edukasi kesehatan kepada lansia.*
***Kata kunci**: penyuluhan kesehatan, lanjut usia, morbiditas, perilaku kesehatan.*

## Introduction

Elderly are prone to higher prevalence of chronic disease like degenerative disease, metabolic syndrome, cancer, heart disease, and also infectious disease which may cause serious defects. However, studies stressed that once healthy lifestyle is adopted and maintained, the defect can be postponed. Therefore, health education about disease prevention for the elderly is important to provide effective and long-lasting behavioral change.[1]

Health education to elderly needs special preparation and implementation plans because their age may increase their awareness level of medical treatment. Meanwhile, their defect may deteriorate their capacity in understanding health message delivered. Therefore, the elderly community needs to have exposure to health promotion and education, especially when they are still healthy enough to understand and practice the message. The health information given was expected to improve their healthy lifestyle and self-management behavior, so they can live more independently and productive.[1-3]

Elderly are prone to have less social support from their family and community.[4] Therefore, place where elderly community gather is conducive for conducting health education. It is not only conducive in indicating that the elderly were still in good physical condition to arrive at the gathering place from their home. It also may provide social sharing from other elderly who had experience of health topic shared. It would be better when the gathering may provide adequate time to focus on the message being delivered, around 15-60 minutes with repetition to provide better retention.[1]

Pension bank is a conducive place where pensioners (age above than 55 years old) have the chance to gather and wait to withdraw pension money every first week of the month for 30-60 minutes long. They usually spend queuing time for sharing their family problem and chatting with each other. The waiting room has also been considered as a potential site to deliver health education message.[5] Therefore, a pension bank in Indonesia initiated to optimize this situation in the waiting room, by conducting specific health education program cooperated with trained health educators or general practitioners to perform health consultation and education module. Group health education was done by the trained general practitioner using a standardized module for geriatric problem developed by Faculty of Medicine Universitas Indonesia (FMUI) and Grand-Aides (GA) Foundation.

Elderly could share their similar health problems and experiences and it might add the value of perceived benefit or risk to trigger behavioral change. Therefore, health education using community approach need to be assessed, especially related to how effective it might change elderly perspective and behavior. This study investigated how exposure of 6 months health education program in pension bank would be effective to improve the elderly perspective on the importance of a healthy lifestyle and also further to their health behavior and morbidity.

## Methods

### *Study Design*

The cross-sectional comparative study was conducted using a questionnaire to guide interview to 438 elderlies in ten cities of pension bank branches in Indonesia. The areas consisted of two cities in Sumatra island (Medan and Binjai), six cities in Java Island (Jakarta, Bogor, Depok, Tangerang, Bekasi, and Surabaya) and two cities in Sulawesi Island (Makassar and Sungguminasa). Analysis of collected data was performed in January-March 2017.

### *Participants*

Pensioners (age more than 55 years old) who visited pension bank were recruited as study participants. We divided them into two groups: those who participated and never had health education in the last six months. Six-month duration was considered to reduce recall bias. The participation rate was divided into regularly (minimum had three times participation) or occasionally (1-2 times participation).

### *Health Education Program*

A scientific team from FMUI, GA Foundation and pensioners bank representatives prepared health education module and delivered to all branches to standardize the health content delivered. Topics arranged were related to a healthy lifestyle (physical activity and nutrition), age-related diseases (diabetes mellitus, hypertension, cardiovascular and infectious disease like dengue and diarrhea), and mental health (dementia). The health educators conducted education session in the waiting room for 30-60 minutes to optimize queuing time which usually spent by elderly to withdraw their pension allowance. Health educators scheduled to employ

health education regularly in the first week of the months. Education process was supported with presentation facilities such as display flipchart or projector, brochures, and audio system.

Health education was conducted using a standardized module which creates consistent message delivery in all site of education. An expert team from FMUI designed the module then pretested it to provide clear health message delivery which can be understood and applied by elderly. The designer team from GA and bank representatives evaluated and maintained the applicability and simplicity of the health education message. Example of the message in the education module was the food choice in the elderly, the importance of increasing protein source in elderly diet, or the example of simple daily exercise in the household. Health education modules were equipped with interactive quiz and games to increase elderly attention and interest.

We conducted health education program only in the first week because that was the peak time for the customer to visit and withdraw their pension allowance in the bank. If the elderly need further and more personal health consultation, they might have a special time to discuss their problem with a physician. The consultation room was provided specifically for health consultation nearby the waiting room of pension bank.

### *Procedure of Data Collection and Sample Size Determination*

Subject was collected using stratified random sampling to determine the number of the subject collected in each city and also by how long their pension time (more or less ten years). To represent the characteristic of each group (regular and occasionally participated, and never had the education), we use descriptive study sample size formula with minimal sample size at 96 subjects per group using confidence interval 95%, error 10%, and estimated unknown proportion was 50%. Data were collected using structured questionnaires.

### *Operational Definition of Variables*

*Health Perspective of Elderly*

Elderly perspectives related to healthy lifestyle were formulated to cover their value about the importance of (a) regular health check; (b) comply to doctor suggestion; (c) balanced diet; (d) first aid knowledge; (e) recreation and leisure time; (f) positive thinking; (g) routine physical activity, and; (h) avoiding bad habit like smoking. We used a Likert scale to evaluate the importance of perspective from 1 (less important) to 5 (very important). The questionnaire was designed and pretested in focused group discussion. The final questionnaire used 10 items of questions. For the subject in participants group, we requested them to assess their health perspectives before and after health education program. It was aimed to evaluate their judgment of any behavior change experienced after health education.

### *Health Behavior and Morbidity*

Health behavior covered in this study was only active lifestyle which determined when elderly admitted doing physical activity like walking, jogging or exercise at least once a week. History of illness in the last three months was collected by questioning whether the elderly had to visit physician for consultation. We took history of illness in the last three months to those who already had three months of health education previously, then we questioned whether they had the illness for more than seven days.

### *Data Analysis*

We performed data analysis using SPSS ver 20. (SPSS Inc. Chicago 2011). Descriptive analysis was to examine the characteristics of the subjects in three groups. We performed a bivariate $X^2$ test to compare group characteristics and compare health behaviour and morbidity using nonparticipants group as reference. Independent t-test was used to compare means of health perspective between participant and nonparticipants group and paired t-test was used to compare means of health perspectives before and after health education program. The significance level was p-value <0.05. Odd ratio with CI 95% was calculated in chi-square analysis.

## Result

### *Subject Characteristics*

We collected 345 subjects who participated in the health education program, consisted of 172 regular and 173 occasionally participant. Non-participants group was 93 subjects, which total of 438 subjects for all group. The proportion of pension time duration was balanced with stratified sampling. Most of them gained high school or higher education. Around one-third of them still had additional income by working as an entrepreneur. Most of them even had family member depend on them. Elderly who self-finance themselves were at

48-62%. More than 50% of elderly must travel for 5 km or more to withdraw pension allowance in the pension bank.

The difference of character among groups was found at subjects' current income and participation in the program. Those who use the health education program regularly tend to have lower income. Meanwhile, most of higher income earner only visited health education occasionally (54%). Regular participants tend to have both group education and personal consultation; meanwhile, occasional participants had consultation only (Table 1).

**Table 1. Characteristics of The Subject**

| Characteristics | Participants | | Non-Participants (n=93) | Total (n=436) |
|---|---|---|---|---|
| | Regular (n=172) | Occasional (n=173) | | |
| Duration of pension time | | | | |
| > 10 years | 48.80 | 50.00 | 50.00 | 49.60 |
| Education | | | | |
| University | 39.89 | 44.7 | 43.96 | 42.63 |
| High school | 39.31 | 37.06 | 38.46 | 38.25 |
| Lower | 20.8 | 18.24 | 17.58 | 19.12 |
| Currently working | 34.68 | 32.35 | 30.77 | 32.95 |
| Current income* | | | | |
| < 2.5 million IDR / month | 61.77 | 32.15 | 66.66 | 67.57 |
| 2-5 - 5 IDR / month | 14.71 | 14.29 | 16.67 | 14.86 |
| > 5 million IDR / month | 23.52 | 53.56 | 16.67 | 17.57 |
| Number of family member that must be covered | | | | |
| 1-3 pts | 81.5 | 88.82 | 72.53 | 82.49 |
| > 4 pts | 18.5 | 11.18 | 27.47 | 17.51 |
| Self financing | 61.6 | 61.2 | 48.4 | 58.53 |
| Distance from home | | | | |
| Less than 5 km | 44.51 | 43.53 | 40.66 | 43.32 |
| Participation in Program* | | | | |
| Group health education only | 5.46 | 17.46 | | |
| Health consultation only | 52.03 | 65.63 | | |
| Both | 42.51 | 16.91 | | |

***Comparison of Health Perspectives of Participants and Nonparticipants Group***

Health perspectives comparison between pre and post health education in participants group showed that all of the items increased. Paired t-test show a significant difference for all item questioned. Perspectives with the highest Likert score were: "I check my health profile regularly on a monthly basis" and "I always try to follow my doctor suggested." Then, perspective about rational drug utilization and balanced diet importance were also increased. Positive thinking perspectives were increased like "I always enthusiastic about doing my daily activities" and "I keep my body fit by doing the routine physical activity." Recreation was the lowest perspectives valued by the subjects.

In all health perspectives there was significant difference between participant and nonparticipant group based on independent t-test. Subject from participant group had better perspectives on health behavior importance than those in non-participants group. Importance of regular health checks and comply to doctor suggestion was the most significant gap between the two groups (Table 2).

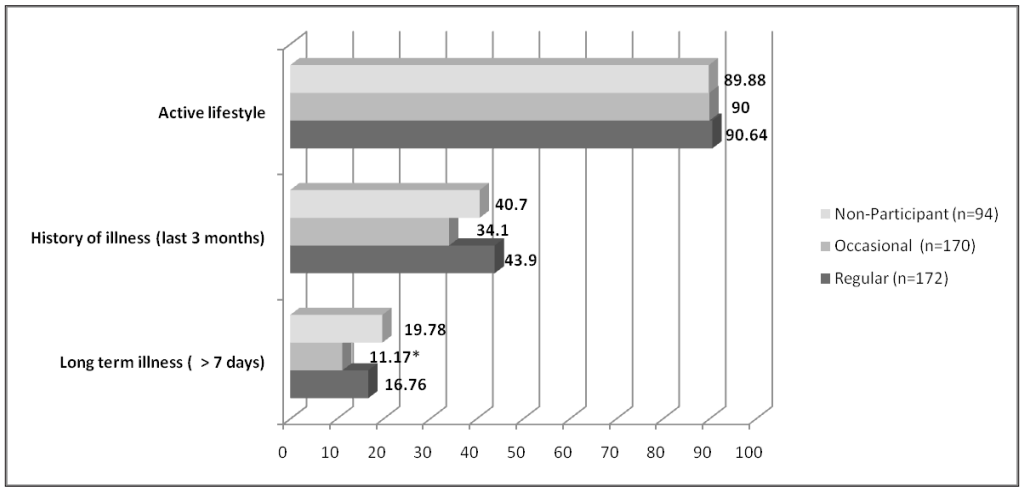
**Table 2. Health Perspective of Participants Before-After The Health Education Compared to Non-Participants**

| Health perspective | Participant | | | Non Participant | Difference of participant and nonparticipant |
|---|---|---|---|---|---|
| | Before | After | Change before-after | | |
| *I check my health profile regularly on monthly basis* | 3.24±0.05 | 3.64±0.05 | 0.40±0.04* | 2.93±0.10 | 0.71±0.11‡ |
| *I always try to follow my doctor suggestion* | 3.49±0.04 | 3.81±0.04 | 0.32+0.03* | 3.44±0.08 | 0.37±0.09‡ |
| *I understand how to use drug rationally* | 3.38±0.04 | 3.70±0.04 | 0.31±0.03* | 3.33±0.08 | 0.36±0.09‡ |
| *I always try to keep my nutrition intake balanced* | 3.52+0.09 | 3.79+0.04 | 0.27+0.09* | 3.49+0.07 | 0.30+0.09‡ |
| *I know how to do first aid of particular accident* | 3.32+0.04 | 3.63+0.04 | 0.30+0.03* | 3.41+0.08 | 0.21+0.09‡ |
| *I always provide myself time for relaxation* | 3.82+0.04 | 4.00+0.03 | 0.20+0.03* | 3.82+0.06 | 0.19+0.07‡ |
| *I am always enthusiastic in doing my daily activities* | 3.71+0.03 | 3.97+0.03 | 0.26+0.03* | 3.84+0.07 | 0.13+0.07‡ |
| *I avoid bad habit like smoking, stay overnight, etc* | 3.61+0.04 | 3.94+0.04 | 0.32+0.03* | 3.80+0.08 | 0.13+0.09‡ |
| *I keep my positive thinking* | 3.82+0.04 | 4.04+0.03 | 0.21+0.03* | 3.92+0.06 | 0.12+0.07‡ |
| *I keep my body fit by doing routine physical activity* | 3.55+0.04 | 3.86+0.04 | 0.31+0.03* | 3.77+0.08 | 0.09+0.09‡ |

*) p-value <0.05 based on pair t-test
‡) p-value <0.05 based on independent t-test

### *Effect of Health Education to Elderly Behavior and Morbidity*

Figure 1 shows that the majority of the subject have an active lifestyle which means had at least once a week physical activity like walking or jogging. All groups were equal in performing active lifestyle around 90% and confirmed by nonsignificant p-value based on hi-square analysis using nonparticipants group as reference. Morbidity related to the history of illness in the last three months was higher at regular participants at 44%, and then non-participant at 41% and the lowest was occasional participant group at 34%. No significant difference in chi-square test.




*) significant p-value based on chi square test using nonparticipant groups as reference

**Figure 1. Effect of Health Education Participation Rate (occasional, regular and non-participant) to Health Behavior (active lifestyle) and Morbidity (history of illness and long term illness for more than 7 days).**

Long term illness was higher in non-participants group (20%) and in regular participants (17%), and the lowest was occasional participants (11%). The difference between occasional participants and non-participants was significant with p-value=0.028, OR=0.46 CI95% 0.22-0.98. The difference between long term illness between occasional and non-participants was not significant.

**Discussion**

This study is novel in stressing how non-health institution like pensioners bank might contribute to health empowerment program especially in elderly. Behavioral change was influenced not only by individual thinking about the benefit of action but also by what perceived by others in their community.[6] Hoving et al[4] stated that the elderly might have inadequate support and care from their friends and family members and stressed that elderly need serious educational program related to old age problem. Therefore all possible channels, likewise health education even from the non-health institution might provide helpful health education, as long as they have the resource to conduct it.[7]

The concept of health education program in pensioners' bank was using community approach and maximized moment where elderly gathered to withdraw their pension allowance. Behavioral change was influenced not only by individual thinking related to the benefit of action but also by what perceived by others in their community.[6] Therefore, health empowerment using community approach need to be assessed, especially related to how effective it might change elderly perspective and behavior. Elderly could share their similar health and social interaction program and it might add their value of perceived benefit or risk to trigger behavioral change. In elderly education, one's experiences are rich sources for learning. When other elderly supported the experiences, it might build better perspectives as a foundation for behavioral change.[1]

The strength of the study was in the sample data collection procedure when we managed to select the respondent randomly in 10 cities in Indonesia. We also managed to provide balance baseline characteristic between the participant and non-participant in pension time duration, education and additional working status. Another characteristic was found different like current income, indicating the characteristics of each group. For instance, higher-income elderly seemed to utilize the program occasionally, rather than lower incomes utilize it regularly.

The elderly have self-concept where adult learner wants to make their own decision and direct themselves to be positive in society and take responsibility for their decisions. They expect to be respected and regarded as unique beings.[1] Therefore, this program employed participation of elderly voluntarily, which made those from lower social, economic status preferred to have health education and consultation. It also became a preference for those with chronic illnesses.

Instead of only using brochures for delivering health message, direct group education by trained educators with standardized health module has more advantage. Especially for elderly with visual impair or less reading habit, health educators with case illustration approach might stimulate more interest for them. Health educators were trained to make opening using real case and to question that case to the elderly, to get their interest and then continued delivering health message. For instance, they asked opening questions for diabetes like "How many persons here had tendency to eat more, drink more and urinate more? "Then, knowing numerous elderly had that problem, it would trigger other elderly interest to join and scrutinize the health education program while waiting for pension withdraw administration. Adults are motivated to learn when they realize that they need to learn. Educators regard every interaction with older adults as an opportunity to support their self-concept.[1]

Health education must apply as continuity of care, where elderly who might have a risk to particular illness, had a chance to discuss their problem further and privately. Instead of only providing health education, this program also provided health consultation. It was evident in Table 1 that health consultation was well utilized by most of the elderly. More than 40% of elderly who can participate regularly join both health education and consultation. Through health consultation session, they would have further assessment and decision whether they need to be referred into primary care or not.

Perspective about "check health regularly on a monthly basis" was the biggest difference between participant and non-participant. The difference occurred even before the participant joined the health education program. It indicated that some elderly were less care to health education or preventive health message. It was related to curative behavior was still prominent in Indonesia at any age group, including the elderly. Health education was expected to increase their health literacy

which might improve their preventive mindset.[8] After the health education, their perspective on the importance of regular health check increased.

Other perspectives with high increase were following doctor suggestion and rational drug utilization. Those perspectives were highly related to the curative approach, which understandable since 75% of the elderly were in the state of having degenerative disease. They also must have good behavior for complying doctor advice and treatment. Other perspectives were related to a healthy lifestyle like a balanced diet, routine physical activity, avoiding bad habits like smoking, and positive thinking. Cattan et al[9] suggested that educational and social activity group interventions that target specific groups, can alleviate social isolation and loneliness among older people and change their behavior into a positive and active lifestyle.

We stressed more about how this program might change perspective rather than to health behavior directly. Due to studies that stated behavioral change needs time more than three months of intensive education. Therefore, we conducted the assessment after the elderly had exposure to the program for six months and three times at minimum.[10,11] We expected with exposure to health education for six months; elderly would change in perspective and then give impact to their behavior and morbidity profile. However, we kept trying to assess the effect on health behavior and further to morbidity, to find whether six months of education exposure already affected active lifestyle behavior and long term illnesses.

Physical activity was still not made any difference between the groups. Probably because health education only, would not adequate to stimulate active lifestyle, instead of doing physical activity regularly at least three times a week. Kececi et al[1] stated that elderly education must contain practical message to ensure how feasible the message to be applied within elderly capability and environment. The health education program already delivers the message of how to do physical activity in elderly like cardio exercise, flexibility, and stability movement. but it also needs support from the community and close family to be implemented. Therefore, developing community activities group might be efficient to increase active elderly lifestyle.[10,12]

We found that morbidity of all illnesses was higher at the regular participant, but long term illness was higher at non-participant. Providing health education and health consultation might trigger self-awareness of the diseases, therefore elderly would be more alert and visit a doctor for an early symptom. However, long term illnesses for more than seven days, decreased significantly among health education participants, indicating that elderly were more cautious to prevent themselves from having long term illnesses like prolonged infection or warded in a hospital due to complications of chronic diseases. This finding was strengthened by Gasmararian et al[13] study which stressed that health literacy about the chronic disease was still lacking. Baker et al[14] then emphasized that inadequate literacy increased the risk of hospital admission. Opportunities to improve patients' knowledge of their chronic disease must be well utilized.[13,14] The idea of using waiting room in the pension bank has proven to give benefit to the elderly.

### *Limitation*

The association observed in this study was based on a cross-sectional study to evaluate the health empowerment program which had been conducted two years earlier. Therefore, whether the elderly involve or not in the program was solely based on their interest and need health information. However, the intake process of elderly perceptions was conducted independently among groups which meant that their ratings on health perceptions were free from other elderly interfere. It also meant that their perceptions were still valid to be compared.

## Conclusion

Utilizing favorable condition where elderly gather and spend time for queuing, a non-health institution like pensioners bank might contribute to providing effective elderly health education. With proper preparation collaboration with general practitioners, health education in pensioner bank waiting room would improve elderly perspective on health behavior and lifestyle and also prevent them from having long term illness. However, to increase health and active lifestyle, health education might need support from community activities, to facilitate the elderly more onto the implementation. About how this program would give value to elderly satisfaction and be effective for creating a good image for health education program socialization, will be explored in another report.

### *Competing Interest*

All authors have received funding for research and honoraria for consultancies, advisory panels,

or speakers' bureaus on behalf of companies, including the sponsor of this study. However, the sponsoring company did not interference the study analysis and manuscript writing.

### *Authors' Contributions*

AK participated in the proposal's design, coordination, data analysis, drafted, and completed the manuscript. IF participated in the proposal's design and coordination, data collection, analysis, and in drafting the manuscript. All authors read and approved the final manuscript.

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