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Linguistic Strategies in Health Behavior Promotion Programs: Enhancing Cognitive Abilities in Elderly Participants

Chalit Chaowilai [1], Issara Siramaneerat [2*], Pongsakorn Sunthrayuth [3], Putthiwat Singhdong [4]

[1] Department of Physical Education, Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani 12110, Thailand

[2] Department of Social Science, Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani 12110, Thailand

[3] Department of Mathematics and Computer Science, Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani 12110, Thailand

[4] Department of International Business and Logistics, Faculty of Business Administration, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani 12110, Thailand

ABSTRACT

Cognitive decline is a prevalent issue among elderly individuals, affecting memory, comprehension, and problem-solving abilities. Effective interventions that integrate linguistic strategies are essential in promoting cognitive resilience and overall well-being. This study evaluated the impact of language-based health behavior promotion programs on enhancing cognitive performance among elderly participants. A quasi-experimental design was employed with 60 elderly participants divided into an experimental and control group. The experimental group participated in a structured program that utilized specific linguistic strategies and cognitive training exercises to promote cognitive health. The control group continued their usual activities without linguistic interventions. The experimental group demonstrated significant improvements in all cognitive domains, including a 4.4-point increase in MoCA scores ($t = 6.18$, $p < 0.01$). Participants showed notable improvements in memory, comprehension, and problem-solving, with linguistic strategies enhancing their ability to process

*CORRESPONDING AUTHOR:

Issara Siramaneerat, Department of Social Science, Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi (RMUTT), Thanyaburi 12110, Thailand; Email: issara_s@rmutt.ac.th

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and retain information. The findings emphasize the effectiveness of incorporating linguistic strategies into multi-domain health behavior promotion programs.

Keywords: Linguistic Strategies; Cognitive Performance; Health Behavior Promotion; Elderly; Communication Techniques; Cognitive Training

1. Introduction

As global populations continue to age, cognitive decline among the elderly has become a critical public health concern. Cognitive impairments, such as memory loss, reduced comprehension, and impaired problem-solving skills, negatively impact the well-being of individuals and impose significant economic and social burdens on healthcare systems worldwide [1]. Mild Cognitive Impairment (MCI), considered an early stage of dementia, presents a critical opportunity for intervention to delay or prevent further cognitive decline. With the aging population growing, it is essential to develop strategies that enhance cognitive health, reduce dependency, and improve the quality of life for aging populations.

In response, linguistic strategies in health behavior promotion programs have emerged as a potential tool for enhancing cognitive abilities. Research has shown that language-based cognitive training, such as memory recall exercises, comprehension tasks, and problem-solving activities, can stimulate cognitive functions and improve neuralplasticity [2]. When integrated into broader health behavior programs, linguistic interventions may significantly contribute to cognitive resilience in older adults, mitigating the effects of aging and cognitive impairment. Additionally, language interventions can support social engagement, a critical factor in maintaining cognitive health in the elderly [3].

Cognitive decline is linked to multiple risk factors, including chronic diseases such as hypertension and diabetes, sedentary behavior, poor nutrition, and limited social interactions [1, 4]. Addressing these risk factors through structured health behavior programs that include physical exercise, cognitive training, social support, and dietary improvements has shown promise in enhancing cognitive outcomes. Linguistic strategies, incorporated into these multicomponent interventions, offer the potential to target cognitive decline directly by engaging participants in meaningful communication tasks that reinforce cognitive processes [5, 6]. While cognitive training programs have shown improvements in memory, comprehension, and problem-solving abilities, particularly in those with early cognitive decline, the effectiveness of these interventions remains inconsistent. Some studies report significant cognitive improvements, while others show minimal or no effects, particularly in control groups not receiving the intervention. Variations in program design, participant characteristics, and specific linguistic strategies may explain these discrepancies [1, 5, 6].

Understanding the impact of linguistic strategies within health behavior programs is crucial for developing evidence-based interventions that support cognitive function in the elderly [1, 4, 5]. This study aims to evaluate the impact of a structured health behavior promotion program, focusing on the role of linguistic strategies in enhancing cognitive abilities. By examining changes in Montreal Cognitive Assessment (MoCA) scores and assessing the influence of memory, comprehension, and problem-solving exercises, this study seeks to explore how linguistic interventions improve cognitive performance in elderly participants. Additionally, the research will assess the effectiveness of cognitive training, physical exercise, and social support in promoting cognitive function. With the increasing global emphasis on aging-related healthcare, the results will contribute to the development of more effective programs that integrate linguistic strategies, offering promising interventions for maintaining cognitive health and fostering independence in older adults.

2. Materials and Methods

2.1. Research Design

This study employed a quasi-experimental design with a pre-test and post-test to examine the effects of a language-based health behavior promotion program on cognitive function in elderly participants. The intervention was designed to incorporate specific linguistic strategies, including guided communication, narrative exercises, and language-based cognitive training tasks aimed at enhancing memory, compre-

hension, and problem-solving abilities. Participants were divided into an experimental group, which received the language-based intervention, and a control group, which did not receive any structured health promotion activities. Cognitive performance was assessed using the Montreal Cognitive Assessment (MoCA) both before and after the intervention, with particular emphasis on memory recall, comprehension, and language processing abilities.

2.2. Participants

The study included 60 elderly participants (aged 60 and older) with mild cognitive impairment (MCI) but not dementia. Participants were recruited from community centers and healthcare facilities and randomly assigned to either the experimental group (n = 30) or the control group (n = 30). The sample size was determined using power analysis in G*Power software (version 3.1.9.7) to ensure a statistical power of 0.80 and to detect significant differences between groups. A medium effect size (Cohen's d = 0.5) was selected based on previous studies, with an alpha level of 0.05 [7]. The independent samples t-test was used to compare the two groups on cognitive outcomes. A minimum of 30 participants per group was required, and to account for potential dropouts, the sample size was adjusted. No participants dropped out, confirming that the final sample of 60 participants was sufficient for detecting statistically significant differences in cognitive outcomes.

Inclusion Criteria

1. Participants must be 60 years of age or older.
2. Participants must have mild cognitive impairment (MCI) as diagnosed by a qualified clinician, confirmed by a clinical interview and cognitive screening tools (e.g., the Montreal Cognitive Assessment - MoCA).
3. Participants must be able to engage in moderate physical activity and cognitive exercises, as determined by a medical evaluation.
4. Participants must be able to perform activities of daily living (ADLs) independently or with minimal assistance.
5. Participants must provide written informed consent to participate in the study.
6. Participants must not be enrolled in any other cognitive training or health promotion programs at the time of the study.
7. Participants must be able to engage in and benefit from language-based cognitive interventions (e.g., narrative recall tasks, language comprehension exercises).

Exclusion Criteria

1. Participants with a diagnosis of dementia or other serious neurodegenerative diseases (e.g., Alzheimer's disease, Parkinson's disease) will be excluded.
2. Participants who have severe physical disabilities or medical conditions that significantly limit their ability to participate in physical activities (e.g., severe cardiovascular conditions, mobility limitations) will be excluded.
3. Participants with a history of severe psychiatric conditions, such as schizophrenia or bipolar disorder, that could interfere with their ability to engage in the study will be excluded.
4. Participants with a history of substance abuse or dependence in the past 12 months will be excluded.
5. Participants who have undergone major surgery or experienced a significant illness within the past 3 months will be excluded.
6. Participants with cognitive impairments that do not meet the criteria for mild cognitive impairment will be excluded.
7. Participants who do not speak the primary language of the study (e.g., Thai, English) will be excluded, as this may affect the ability to participate in cognitive assessments or language-based interventions.
8. Participants who are unable to understand or engage in linguistic tasks, such as memory recall exercises or comprehension activities, due to language barriers or cognitive limitations will be excluded.

2.3. Intervention

The health behavior promotion program for the experimental group lasted eight weeks and incorporated linguistic strategies aimed at enhancing cognitive function in elderly participants. The intervention was designed to engage participants in structured activities focusing on four key areas, integrating cognitive and language-based exercises.

1. Physical Exercise
   Participants engaged in supervised exercise sessions three times a week, focusing on aerobic activities, bal-

ance, and strength training. Each session lasted 30–45 minutes. While physical exercise has been shown to have direct cognitive benefits, linguistic strategies were incorporated into these sessions by integrating simple language cues and verbal instructions to reinforce cognitive processing.

2. Nutrition Education

Weekly sessions provided guidance on nutrition that supports brain health, with an emphasis on the consumption of fruits, vegetables, whole grains, and healthy fats. These sessions included interactive language-based activities, such as group discussions and question-and-answer sessions, to promote participant engagement and the retention of key nutritional information.

3. Cognitive Training

Participants received guided memory exercises, problem-solving tasks, and comprehension exercises twice weekly. The linguistic component of the cognitive training included narrative recall tasks, where participants were asked to retell stories or recall sequences of events, as well as comprehension exercises that encouraged the use of language to process and interpret information. These language-based tasks aimed to enhance memory and comprehension, as well as improve cognitive flexibility.

4. Social Interaction

Weekly group discussions were held to foster social engagement and improve communication skills. These sessions focused on conversation skills, group problem-solving, and discussion of personal experiences, allowing participants to practice language skills in a supportive social environment. The social interactions not only helped build cognitive resilience but also improved participants' verbal fluency and social communication abilities.

The control group did not receive any intervention and continued with their usual daily activities without any structured cognitive training or social engagement activities.

2.4. Data Collection

Cognitive function was assessed using the Montreal Cognitive Assessment (MoCA), which measures various cognitive domains, including memory, comprehension, and problem-solving. MoCA scores were recorded at baseline (prior to the intervention) and immediately after the eight-week program. In addition to the overall MoCA score, subscores for short-term memory, comprehension, and problem-solving were analyzed separately to provide a more detailed understanding of the program's effects on specific cognitive skills related to language processing as shown experimental process in **Figure 1**.

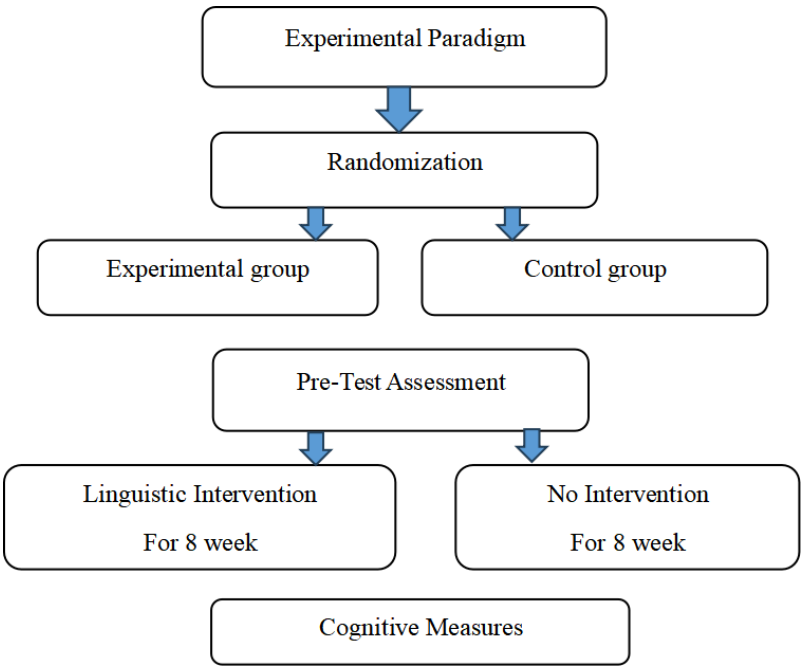

Figure 1. The schematic diagram.

2.5. Data Analysis

Descriptive statistics were used to summarize the demographic characteristics of the participants in both the experimental and control groups. Paired sample *t*-tests were conducted to compare pre- and post-intervention MoCA scores within the experimental and control groups. Independent sample *t*-tests were used to compare differences in MoCA scores between the two groups post-intervention. Statistical significance was set at $p < 0.01$ to account for multiple comparisons across different cognitive domains. All analyses were conducted using SPSS software.

3. Results

The demographic and baseline characteristics of participants in both the experimental and control groups were analyzed to understand potential similarities and differences, particularly in how linguistic strategies may influence cognitive abilities in elderly participants. Both groups were balanced in terms of gender, with 50% male and 50% female in the experimental group, and 46.7% male and 53.3% female in the control group (**Table 1**). This balance is important as linguistic strategies, especially those involving verbal exercises and communication tasks, may engage participants differently based on gender-specific communication styles. The average age was similar between groups, with the experimental group averaging 70.0 (±5.2) years and the control group averaging 69.0 (±4.8) years. This suggests both groups were of a similar age, which is significant since cognitive aging and the effectiveness of language-based interventions can be influenced by age-related changes in neuralplasticity.

Table 1. Baseline Characteristics of Participants in the Linguistic-Based Health Behavior Promotion Program (Experimental and Control Groups).

Variable	Experimental Group (n = 30)	Control Group (n = 30)
	Frequency (%)	Frequency (%)
Gender		
Male	15 (50.0)	14 (46.7)
Female	15 (50.0)	16 (53.3)
Age	70.0 ± 5.2	69.0 ± 4.8
Marital Status		
Married	18 (60.0)	17 (56.7)
Single/Widowed/Divorced/Separated	12 (40.0)	13 (43.3)
Education Level		
Primary School	6 (20.0)	8 (26.7)
Secondary School	15 (50.0)	12 (40.0)
Higher Education	9 (30.0)	10 (33.0)
Pre-retirement Occupation		
Agriculture	12 (40.0)	10 (33.3)
Service Industry	9 (30.0)	8 (26.7)
Public/Private Sector	9 (30.0)	12 (40.0)
General Health		
With Chronic Diseases	15 (50.0)	15 (50.0)
Without Chronic Diseases	15 (50.0)	15 (50.0)
Exercise Behavior		
Regular Exercise	21 (70.0)	10 (33.0)
No Exercise	9 (30.0)	20 (66.7)
Social Support		
With Support	24 (80.0)	22 (73.3)
Without Support	6 (20.0)	8 (26.7)

Regarding marital status, the majority in both groups were married (60% in the experimental group and 56.7% in the control group), with the remaining participants being single, widowed, divorced, or separated (40% in the experimental group and 43.3% in the control group). Marital status can influence social interaction and communication, key factors in the linguistic components of the intervention. In terms of education level, 20% of the experimental group

had primary school education, 50% had secondary education, and 30% had higher education. In the control group, 26.7% had primary education, 40% had secondary education, and 33% had higher education. Education level influences participants' ability to engage in language-based cognitive training, involving memory recall, comprehension, and problem-solving exercises. The pre-retirement occupation distribution showed slight variations between groups. In the experimental group, 40% were in agriculture, 30% in the service industry, and 30% in the public/private sector, while the control group had 33.3% in agriculture, 26.7% in the service industry, and 40% in the public/private sector. Occupation types can affect language use and social interaction, which are integral to the success of language-based interventions (**Table 1**).

Both groups had a similar health status, with 50% in each group having chronic diseases, which can impact cognitive decline and language processing abilities, affecting participants' engagement in cognitive training activities. Exercise behavior differed notably between groups. 70% of the experimental group reported regular exercise, compared to 33% in the control group. The higher physical activity in the experimental group may enhance cognitive benefits, compounded by linguistic tasks. Finally, social support was high in both groups, with 80% in the experimental group and 73.3% in the control group reporting social support (**Table 1**). This support is crucial for language use, promoting communication and engagement in verbal exercises. The experimental group's higher percentage of support may have contributed to better engagement with the program's language components.

Table 2 presents the analysis of cognitive performance in elderly individuals before and after participating in the linguistically-based health behavior promotion program, showing significant improvements in the experimental group. The mean MoCA score increased from 19.3 (±4.2) to 23.7 (±3.9), with a mean change of 4.4 points, which was statistically significant ($t = 6.18$, $p = 0.001$). The inclusion of linguistic strategies, such as guided communication tasks, memory exercises, and language comprehension activities, positively impacted cognitive performance. Short-term memory scores rose from 5.4 (±1.2) to 7.1 (±1.1), resulting in a mean change of 1.7 ($t = 4.22$, $p = 0.001$), suggesting that the linguistic-based cognitive training effectively enhanced memory retention and recall ability. Comprehension scores improved from 4.7 (±1.0) to 6.5 (±0.9), with a mean increase of 1.8 ($t = 5.10$, $p = 0.001$). The focus on language comprehension exercises, such as story retelling and verbal problem-solving, enhanced the ability to process and understand spoken information. Problem-solving scores increased from 3.6 (±1.1) to 5.9 (±1.0), with a mean change of 2.3 ($t = 5.78$, $p < 0.01$). These results demonstrate the success of linguistic-based problem-solving tasks in enhancing cognitive function in elderly participants.

Table 2. Analysis of Cognitive Performance Before and After Linguistic-Based Health Behavior Promotion Program in Elderly Participants.

Cognitive Performance	Before Program (M ± SD)	After Program (M ± SD)	Change	*t*-Value	*p*-Value
MoCA Score	19.3 ± 4.2	23.7 ± 3.9	4.4	6.18 **	0.001
Short-term Memory	5.4 ± 1.2	7.1 ± 1.1	1.7	4.22 **	0.001
Comprehension	4.7 ± 1.0	6.5 ± 0.9	1.8	5.10 **	0.001
Problem-solving	3.6 ± 1.1	5.9 ± 1.0	2.3	5.78 **	0.001

Note: ** meaning there is significant at level 0.01.

In contrast, the control group, which did not participate in the linguistic-based health behavior promotion program, showed minimal changes in cognitive performance. The MoCA score increased slightly from 15.0 (±1.03) to 15.4 (±1.0), with a *t*-value of 0.48 and a *p*-value of 0.65, indicating no statistically significant improvement as shown in **Table 3**. This lack of change highlights the potential impact of linguistic strategies in the experimental program, which combined language-based cognitive exercises with other health-promoting activities. Similarly, short-term memory, comprehension, and problem-solving scores in the control group showed negligible changes, with none reaching statistical significance. These minimal changes suggest that without structured language-based interventions like verbal memory exercises and comprehension tasks, cognitive performance in the control group remained largely unchanged. The stark contrast between the experimental and control groups emphasizes the effectiveness of linguistically-based

programs in enhancing cognitive function in elderly participants, highlighting the potential of targeted language-driven interventions to improve cognitive abilities in older adults as shown in **Figure 2**.

Table 3. Cognitive Performance in the Control Group.

Cognitive Performance	Before Program (M ± SD)	After Program (M ± SD)	Change	*t*-Value	*p*-Value
MoCA Score	15.0 ± 1.03	15.4 ± 1.0	0.4	0.48	0.65
Short-term Memory	5.9 ± 1.1	6.0 ± 1.2	0.1	0.49	0.61
Comprehension	5.1 ± 0.8	5.3 ± 0.9	0.2	0.57	0.65
Problem-solving	4.0 ± 1.2	4.1 ± 1.1	0.1	0.49	0.60

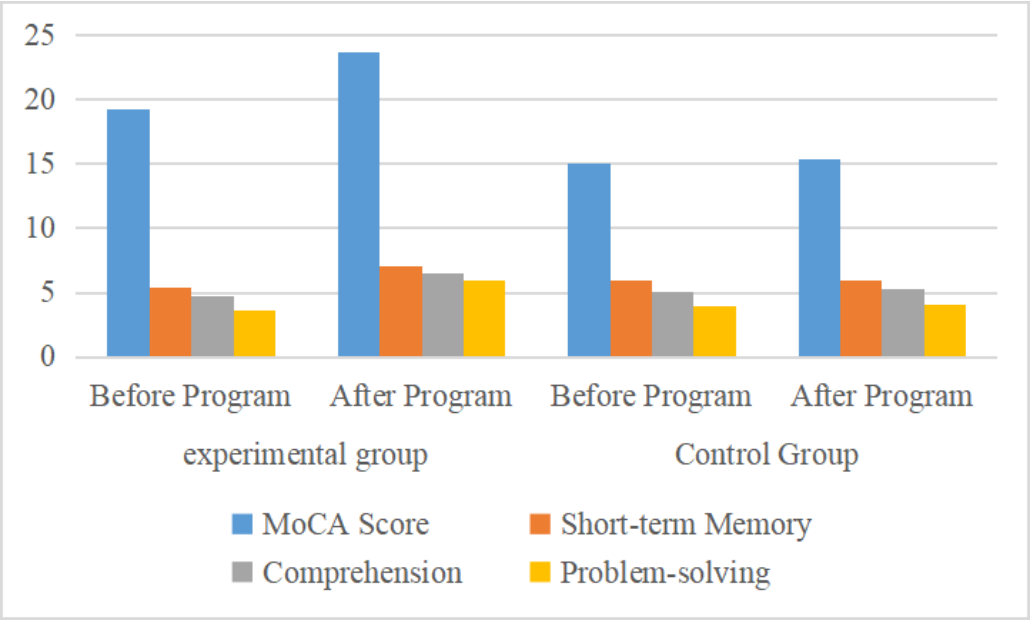

Figure 2. Cognitive Performance Before and After Linguistic-Based Health Behavior Promotion Program of experimental and control group.

4. Discussion

The findings from this study suggest that a structured linguistically-based health behavior promotion program significantly improves cognitive performance in elderly participants, particularly in areas like overall cognitive function (as indicated by the MoCA score), short-term memory, comprehension, and problem-solving. These results align with existing research highlighting the positive effects of structured health interventions, especially those incorporating linguistic strategies, on cognitive health in older adults. Previous studies have shown that regular engagement in physical, cognitive, and language-based activities enhances memory, executive function, and mental agility, contributing to cognitive resilience and improved quality of life [8].

In the experimental group, the marked improvements are likely due to the multifaceted nature of the intervention, which incorporated linguistic strategies through verbal memory exercises, problem-solving tasks, cognitive training, physical exercise, social support, and nutrition education. Each of these elements has been linked to cognitive health benefits. Regular physical exercise, especially aerobic and strength training, increases blood flow to the brain, supports neuroplasticity, and enhances memory and executive function. Cognitive training exercises, such as those focused on memory, problem-solving, and comprehension, boost cognitive reserve and delay dementia-related symptoms. The linguistic strategies, like narrative recall and verbal comprehension tasks, likely facilitated improvements in cognitive performance [2].

Social engagement, another core component, reduces the risk of cognitive decline by stimulating neural pathways involved in memory and cognitive processing. The language-based social interactions within the program encouraged

meaningful conversations and discussions, offering additional cognitive benefits by creating a supportive, mentally stimulating environment [3]. This study supports previous findings that cognitive training interventions, particularly those combined with physical exercise and social support, are highly effective for elderly individuals. For example, Barnes et al. [9] found that mental and physical exercises led to significant improvements in cognitive and daily functioning, emphasizing the importance of a holistic approach to enhancing cognitive abilities in older adults.

The control group did not show significant changes in cognitive performance, suggesting that typical daily activities, without structured interventions incorporating linguistic strategies, are insufficient to maintain or improve cognitive function in elderly populations. This supports Yaffe et al. [10], who found that the absence of structured mental and physical activities leads to stagnation or decline in cognitive abilities. The lack of exercise and social interaction in the control group likely contributed to their lack of improvement, as both are protective factors against cognitive decline [11]. Studies have shown that older adults who experience social isolation or lack regular physical activity are at a higher risk for cognitive impairment and dementia [12].

In contrast, the experimental group's participation in the linguistically-based health behavior promotion program, which combined cognitive training with linguistic strategies such as verbal exercises, narrative recall tasks, and comprehension activities, resulted in significant cognitive improvements [13]. This highlights the importance of holistic health interventions that combine physical exercise, cognitive training, and social engagement as key components of cognitive health programs for older adults. The integration of linguistic strategies amplified these cognitive benefits, fostering better engagement and cognitive stimulation [14–16].

Given the positive results observed in the experimental group, it is clear that a comprehensive, multi-domain intervention that includes linguistic strategies can substantially impact maintaining and improving cognitive function in aging populations. Future research should explore the long-term effects of such interventions and investigate the specific contributions of each program component (i.e., exercise, cognitive training, social support, and linguistic activities) to cognitive improvements [8]. Expanding studies to larger and more diverse populations would help establish the generalizability of these findings [17–20].

Additionally, the study's design could be strengthened by incorporating a follow-up period to assess the sustainability of cognitive improvements over time. Longitudinal studies are useful for understanding the lasting effects of health behavior interventions on cognitive decline, as cognitive benefits may diminish without continued engagement in such programs. This would also help to understand how linguistic strategies might sustain cognitive improvements in the long run [10].

This study distinguishes itself from previous research by focusing on the role of linguistic strategies in enhancing cognitive abilities in elderly participants, unlike studies that primarily emphasize physical activity or general health behavior programs. The key contribution lies in exploring how structured language-based interventions, such as verbal exercises and communication tasks, directly impact cognitive functions like memory, comprehension, and problem-solving [21]. By integrating these linguistic strategies with other health-promoting activities, such as physical exercise, the research offers a multi-faceted approach to cognitive health. This study highlights the importance of tailored interventions that consider linguistic and social factors, providing a more targeted and sustainable method for improving cognitive function in older adults. Overall, it paves the way for further exploration of language-driven interventions in aging research and cognitive health promotion [22]. In conlusion, this research reinforces the efficacy of structured health behavior promotion programs in supporting cognitive health and mitigating age-related cognitive decline. Given the aging population worldwide, such interventions, especially those incorporating linguistic strategies, could play a critical role in improving quality of life and reducing the burden of dementia and other cognitive impairments.

5. Conclusion

This study explored the impact of linguistic strategies in a health behavior promotion program on cognitive abilities in elderly participants. The analysis of baseline characteristics revealed that the experimental and control groups were similar across various demographic factors such as gender, age, marital status, education, occupation, and health status, ensuring that the results could be attributed to the intervention

itself[23]. The key finding of this study is that the experimental group, which participated in the linguistically-based health behavior promotion program, showed significant improvements in cognitive functions, particularly in memory, comprehension, and problem-solving skills. The use of structured linguistic strategies, including verbal exercises and language comprehension tasks, proved to be effective in enhancing cognitive performance as demonstrated by the substantial increase in MoCA scores and other cognitive domains[24].

In contrast, the control group, which did not participate in the intervention, exhibited negligible changes in cognitive performance, reinforcing the positive impact of the linguistic strategies incorporated in the program. These results support the notion that language-driven interventions can significantly benefit elderly individuals, particularly in terms of cognitive health, making them a promising tool in aging research and health promotion efforts. The combination of cognitive training and other health-promoting activities, such as regular exercise, may amplify the overall cognitive benefits for the elderly, providing further evidence for the need to include multi-faceted approaches in elderly care programs.

In summary, this study highlights the positive impact of linguistic strategies on cognitive abilities in elderly participants, showing that structured language-based interventions, like verbal exercises and communication tasks, can improve memory, comprehension, and problem-solving skills[25–27]. Combining these interventions with physical exercise offers a comprehensive approach to cognitive health. The study emphasizes the importance of tailored interventions considering linguistic and social factors, contributing to aging and cognitive health research. Future studies should explore the long-term effects and adapt these strategies to diverse cultural groups, as well as incorporate technological tools for wider accessibility. Overall, this research lays a foundation for future work in enhancing cognitive health through language-based interventions for older adults.

6. Prospects for Future Work

While this study highlights the effectiveness of linguistic strategies in improving cognitive abilities, there are several areas for future research and improvement. First, a longer follow-up period could provide insights into the long-term effects of linguistic-based interventions on cognitive function. It would be valuable to track cognitive changes over several months or even years to determine whether the improvements observed in the experimental group are sustained or if they decline over time[28]. Second, further studies could expand the sample size and include more diverse populations, such as elderly individuals from different cultural backgrounds or with varying levels of cognitive impairment. This would help determine whether linguistic-based interventions are universally effective or if they require adaptation to specific groups[29]. Third, incorporating additional cognitive domains, such as executive function, attention, and processing speed, would provide a more comprehensive understanding of how linguistic strategies affect different aspects of cognition. It would also be valuable to investigate whether certain linguistic strategies, such as task complexity or the use of specific language types (e.g., storytelling versus problem-solving), yield more significant benefits for cognitive health[30]. Lastly, exploring the integration of technology, such as cognitive training apps or virtual communication platforms, could enhance the accessibility and scalability of linguistic-based programs, particularly in remote or underserved areas. Further research on how to deliver these interventions effectively through digital means could significantly improve the reach of these programs[10, 17]. In conclusion, while this study provides promising results regarding the impact of linguistic strategies on cognitive function in elderly individuals, continued research will be essential to refine these interventions, optimize their delivery, and assess their long-term effects on cognitive health.

Author Contributions

C.C. contributed to the conceptualization of the study, methodology, data analysis, and the writing of the original draft. I.S. was responsible for data collection, interpretation of results, and the writing of the original draft, in addition to reviewing and editing the paper. P.S. (Pongsakorn Sunthrayuth) conducted the literature review, contributed to data collection, and assisted in writing the original draft. P.S. (Putthiwat Singhdong) played a key role in statistical analysis and interpretation of data. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of the College of Medical and Public Health Technology, Kanchanaphisek (protocol code KMPHT-66010007, approval date: October 1, 2023).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data supporting the findings of this study are available upon request.

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Conflicts of Interest

The author declares no conflict of interest.

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