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Prevention of Dementia in the Elderly through Community Health Education: A Systematic Literature Review

Warliana¹, Eneng Solihaha²

Politeknik Kesehatan Kemenkes Bandung, Jawa Barat, Indonesia

E-mail: warliana@staff.poltekkesbandung.ac.id

ABSTRACT

Background: The body temperature of newborns is very vulnerable to changes in room temperature, especially during the first day of birth and the neonatal period. Baby care has an important role in ensuring the stability of body temperature during the adaptation period. Prevention of hypothermia in newborns aims to maintain a stable body temperature by avoiding exposure to cold and wind. Most parachute materials contain plastic, the basic ingredients of which are polyester, which have the properties of a waterproof and heat-resistant material, often used as a material for warm jackets in cold climates because of its ability to withstand the wind. Research objective: to determine the effect of a Padwarm or warm sleeping bag in preventing hypothermia in normal newborns. Method: this type of research is Quasy Experiment with the design "One group pre test-post test design" the study sample is 35 normal newborns. The sampling technique is accidental sampling, the analytical test used is the Wilcoxon Signed Rank Test. Results: there is a significant difference between before using Padwarm and after using Padwarm where the average temperature before use was 36.26°C; 95% CI (36.21 - 36.31) and the average temperature after use was 36.709°C; 95% CI (36.652 -36.765) p value of 0.000. Suggestion: Padwarm warm sleeping bags can be an alternative choice for baby sleeping bags in early neonates.

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1. INTRODUCTION

Dementia is a syndrome characterized by a significant decline in cognitive function that interferes with daily activities (Triyulianti & Ayuningtias, 2022). With the global increase in the elderly population, dementia has become one of the major public health challenges worldwide (Ayuningtyas & Rayhani, 2018). According to the World Health Organization (2023), more than 55 million people live with dementia globally, and this number is projected to rise to 139 million by 2050 if no effective preventive efforts are undertaken. Each year, nearly 10 million new cases of dementia are diagnosed globally, with the majority occurring in low- and middle-income countries (WHO, 2023). In Indonesia, based on the 2018 Basic Health Research (Riskesdas), the prevalence of cognitive impairment among older adults reached 20.1%. This figure reflects the potential burden on the national healthcare system, particularly due to the high level of dependency of individuals with dementia on long-term care and informal caregiving by family members (Ministry of Health of the Republic of Indonesia, 2018). The high prevalence underscores the importance of early detection and community-based prevention efforts to mitigate the broader social and economic impacts. Research indicates that several modifiable risk factors contribute to the development of dementia, including a sedentary lifestyle, poor diet, smoking, excessive alcohol consumption, hypertension, diabetes, and social isolation (Livingston et al., 2020). Interventions targeting these factors have been shown to reduce the risk of developing dementia. One promising approach in this context is health education. Health education has been recognized as a strategic means to improve public health literacy, including among the elderly, and to promote behavioral changes toward healthier lifestyles (Vilasari et al., 2024). By delivering relevant, participatory, and age-appropriate information, educational interventions can raise awareness of dementia risks and strengthen motivation to adopt preventive habits (Nugraha et al., 2024).

Demonstrated that a 12-week community education program significantly increased elderly knowledge about dementia prevention and improved behaviors such as diet and physical activity (Dominguez et al., 2021). Similarly, Cheng et al. (2022) found that community-based educational interventions in China enhanced cognitive literacy and improved memory function among older adults. A longitudinal study by also revealed that regular participation in health education programs correlated with a reduced incidence of mild cognitive impairment (Takeuchi and Kawashima, 2023). These findings highlight the critical need to integrate educational approaches into public policy and primary healthcare services as part of a national dementia prevention strategy.

Nevertheless, there remains a gap in scientific evidence regarding the effectiveness of various health education models for dementia prevention among older populations. Therefore, a systematic review of the existing literature is necessary to synthesize recent findings and provide guidance for the development of more effective interventions in the future.

2. METHODS

This study employs a Systematic Literature Review (SLR) approach to examine the relationship between self-regulated learning (SRL) and the psychological well-being of nursing students. The systematic method was selected because it provides a transparent and structured framework for comprehensively searching, selecting, appraising, and synthesizing scholarly literature (Moher et al., 2009). SLR enables the identification of patterns, gaps, and relationships among the variables under investigation, based on strong and replicable evidence (Anggraeni, 2024). In this context, the primary objective of the SLR is to address the central research question: How does health education intervention influence dementia prevention efforts among the elderly?

Data Sources and Databases

The literature search was conducted using PubMed, a highly respected bibliographic database in the fields of health and biomedical sciences. PubMed was selected due to its extensive journal coverage, open access capabilities, and integration with the MEDLINE indexing system, which is standardized and rigorously curated. This database encompasses various relevant disciplines, including nursing, health education, psychology, and medicine. Given the focus of this review—examining the influence of health education interventions on dementia prevention among the elderly—PubMed was considered a highly relevant and credible source for accessing high-quality scientific literature.

Literature Search Strategy

A systematic search was carried out on the PubMed database using the following query: "health education AND dementia prevention AND elderly".

The search was conducted on November 10, 2024.

Inclusion and Exclusion Criteria

Inclusion criteria: Primary studies (observational or experimental); Elderly population (aged ≥60 years); Focus on health education interventions related to dementia prevention; Published in English.

Exclusion criteria:

Systematic reviews, meta-analyses, and editorials; Animal studies; Studies not specifically focused on health education.

3. RESULTS AND DISCUSSION

Key Findings from the Selected Literature

- 1) found that perceptions and self-efficacy play a crucial role in dementia prevention behaviors through health education based on the Health Belief Model (Huang et al., 2024).
- 2) designed an 8-week multidomain educational intervention and indicated that this approach has potential in reducing cognitive risk factors among older adults (Wang et al., 2024).
- 3) investigated barriers to implementing dementia prevention education, emphasizing the need for adaptive strategies within elderly care services (Ng et al., 2023).

- 4) demonstrated that risk awareness and motivation for healthy behaviors can be significantly improved through targeted educational interventions (Kim et al., 2023).

Thematic Analysis

Three central themes emerged from the selected literature: 1) The importance of perception and health literacy. 2) The effectiveness of multidomain educational programs. 3) The influence of education on motivation and intention toward preventive behavior

Interpretation of Findings

The findings of this review demonstrate that health education is an effective strategy in supporting dementia prevention efforts, particularly among older adults. Increased knowledge about dementia, when combined with interventions that enhance self-efficacy, significantly contributes to positive behavioral change. Several studies (Huang et al., 2024; Wang et al., 2024) highlight how targeted education can improve risk awareness and encourage healthy habits such as regular physical activity, balanced nutrition, and cognitive engagement. These behavioral shifts are essential in maintaining brain health and delaying the onset of dementia-related decline. The effectiveness of health education interventions is further strengthened when grounded in established behavioral theories. The Health Belief Model (HBM), Theory of Planned Behavior (TPB), and Social Cognitive Theory (SCT) provide frameworks to understand how individuals process health information and decide to act. For example, HBM emphasizes perceived susceptibility and benefits, TPB highlights intention and social norms, while SCT stresses self-efficacy and modeling behavior. These theories offer a foundation for designing more structured, personalized, and impactful interventions that resonate with older populations. Empirical evidence supports this theoretical foundation. In the Lancet Commission on Dementia Prevention, Intervention, and Care, estimate that up to 40% of dementia cases can be prevented or delayed by addressing modifiable risk factors many of which are behavioral and educational in nature (Livingston et al., 2020). Further reinforce this by demonstrating how an eight-week multidomain education program incorporating cognitive training, physical activity, dietary advice, and social participation can significantly lower dementia risk and improve health literacy among elderly participants (Wang et al., 2024).

However, the success of such programs is closely tied to their cultural and contextual relevance. Culturally adapted interventions, like those described by Ng et al. (2023), show higher participation and engagement when they align with local values, language, and learning styles. In regions like Southeast Asia, integrating family traditions, religious beliefs, and communal practices into educational content can increase acceptance and sustainability. These adaptations ensure that the material is not only accessible but also emotionally and socially meaningful to participants.

Another critical factor is the role of motivation and personal perception. Studies by indicate that information alone is insufficient; education must also foster motivation and self-belief (Kim et al., 2023 and Tiara et al., 2024). Interventions that fail to engage participants emotionally or build self-efficacy tend to have limited impact. In contrast, programs that

promote personal reflection, group dialogue, and empowerment are more likely to influence lasting behavioral change.

The involvement of family members and social networks also significantly strengthens intervention outcomes. Family support helps reinforce daily preventive behaviors—such as meal planning, encouraging exercise, or providing cognitive stimulation. Emphasize that when caregivers are engaged in the education process, they act as behavioral enablers, enhancing the consistency and sustainability of lifestyle changes (Cheng et al., 2022 and Papastavrou et al., 2021). Technological innovations and community-based delivery systems offer further opportunities to expand impact. Digital platforms, mobile health applications, and community health worker outreach have increased accessibility for elderly populations, particularly in underserved areas. For instance, [unclear] found that smartphone-based cognitive health apps, combined with education, improved memory and executive function in older adults (Jang et al., 2023). Similarly, international models such as Dementia-Friendly Communities in the UK demonstrate the potential for integrating education into broader social systems to foster inclusivity and long-term support. Taken together, these findings underscore the importance of embedding health education within national dementia prevention strategies. Effective programs should be theory-driven, culturally sensitive, participatory, and community-oriented. Policymakers must invest in educator training, curriculum development, and resource provision to ensure scalability and sustainability. Health education, therefore, is not merely a preventive tool, but a strategic pillar in the broader landscape of aging and public health policy, contributing meaningfully to the well-being and independence of the elderly population.

Theoretical and Practical Implications

Theoretically, the findings of this review support the validity of several behavioral change models—namely the Health Belief Model (HBM), Theory of Planned Behavior (TPB), and Social Cognitive Theory (SCT)—in explaining health behavior change among older adults. The HBM explains how individuals' perceptions of risk and benefits influence their motivation to adopt preventive behaviors. The TPB extends this by incorporating behavioral intention and social norms, which are particularly relevant in community-based interventions. Meanwhile, SCT, as proposed by Bandura, highlights the role of self-efficacy and observational learning through social modeling—concepts that are highly applicable in group-based health education for the elderly. Practically, the findings underscore the importance of integrating health education into primary healthcare systems and community-based public health programs, particularly those targeted at older adults. Educational interventions should be designed with the following key principles:

- 1) Interactive design – utilizing visual media, simulations, and group discussions to foster engagement and active participation;
- 2) Culturally contextualized – tailored to the values, language, and preferences of the local community;
- 3) Community-based and sustainable – supported by local health workers, family members, and professionals embedded within the community;

- 4) Multidomain and holistic – encompassing nutrition, physical activity, cognitive stimulation, and social support;
- 5) Long-term integration – referencing models such as Community-Based Dementia Prevention Programs in Korea and Dementia Friendly Communities in the UK as successful frameworks for sustained and integrated interventions.

Moreover, family involvement is essential, as social support is a critical factor in maintaining preventive behaviors. Families can serve as primary facilitators in reinforcing daily practices such as meal planning, exercise routines, and social engagement.

The findings from the selected literature emphasize the significant role of health education in dementia prevention efforts, particularly through the enhancement of perceptions and self-efficacy among older adults. The Health Belief Model (HBM), Theory of Planned Behavior (TPB), and Social Cognitive Theory (SCT) provide valuable frameworks for understanding how individuals process health information and engage in preventive behaviors. These theories underscore the importance of fostering awareness, motivation, and self-belief to encourage lifestyle changes that can mitigate dementia risk. Programs designed with these behavioral theories at their core are more likely to have a lasting impact, as they resonate with participants' perceptions and decision-making processes. Moreover, as evidenced by various studies, multidomain educational programs that integrate cognitive training, physical activity, nutrition, and social participation are crucial in reducing cognitive decline and improving health literacy among the elderly (Wang et al., 2024).

Incorporating cultural context into health education interventions is another critical aspect that can enhance their effectiveness. As shown by (Ng et al, 2023), culturally adapted programs are more likely to engage older adults by aligning with their local values, languages, and learning preferences. This cultural relevance ensures that the materials resonate on an emotional level, making the content more meaningful and acceptable. For example, integrating family traditions and community practices into educational programs can foster a sense of belonging and increase participation rates. Furthermore, culturally sensitive interventions are essential for ensuring that the elderly population, especially in regions with unique cultural practices like Southeast Asia, feels empowered to engage in preventive behaviors. This approach increases the sustainability of the interventions, as it helps integrate dementia prevention into the everyday lives of the elderly and their families.

The involvement of family members and caregivers also plays a key role in the success of dementia prevention education programs. When caregivers are actively involved in the educational process, they reinforce the behaviors promoted through these programs, ensuring they are sustained beyond the intervention period. Additionally, innovations in technology and community-based outreach systems present opportunities to expand the reach of these interventions, especially in underserved areas. Digital platforms, such as mobile health apps and online educational resources, are increasingly being utilized to provide cognitive training and health education in a more accessible and scalable manner (Jang et al., 2023). Policymakers, therefore, must prioritize the integration of health education into primary healthcare systems and public health policies, ensuring that it is sustainable,

widely accessible, and culturally tailored. The combination of these strategies will strengthen the capacity of health education to support dementia prevention efforts on a global scale.

4. CONCLUSION

Health education plays a pivotal role in dementia prevention, particularly among the elderly population. This systematic review reveals that well-designed educational interventions significantly enhance awareness, self-efficacy, and motivation toward adopting healthier behaviors. By improving knowledge on modifiable risk factors such as physical inactivity, poor diet, and social isolation, educational initiatives can substantially delay the onset of dementia-related cognitive decline. Furthermore, interventions based on established behavioral models, such as the Health Belief Model, Theory of Planned Behavior, and Social Cognitive Theory, are effective in promoting sustained changes in health behavior among older adults.

The success of these educational programs depends not only on their theoretical underpinnings but also on their cultural relevance and engagement strategies. Tailoring interventions to the cultural values, learning preferences, and social context of the target population ensures higher participation and deeper engagement. Additionally, the involvement of family members and caregivers is essential, as they provide emotional and practical support in reinforcing the preventive behaviors introduced in educational programs. These findings highlight the need for a comprehensive, community-based approach that integrates both individual and social support systems in dementia prevention efforts.

Moving forward, it is crucial to integrate health education more systematically into national dementia prevention strategies. Policymakers must prioritize the development of scalable, sustainable, and culturally appropriate educational interventions that are delivered through primary healthcare systems and community networks. With continued investment in educator training, curriculum development, and resource allocation, health education can become a cornerstone of public health efforts to reduce dementia risk and improve the quality of life for the elderly, thus contributing to healthier, more independent aging populations worldwide.

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