ARTÍCULO ORIGINAL

Gac Méd Caracas 2026;134(Supl 1):S75-S82
DOI: 10.47307/GMC.2026.134.S1.10

Relationship Between Family Empowerment and Dementia Prevention Behaviors in Older Adults

Relación entre el empoderamiento familiar y las conductas de prevención de la demencia en adultos mayores

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SUMMARY

Introduction: *One of the main health issues in the elderly is the increased risk of dementia. Good health and well-being in older adults prevent dementia. Dementia not only affects the individual who experiences it, but also the family as the main support system. The family has a strategic role in preventing or delaying the onset of dementia symptoms through family empowerment. This study aims to examine the relationship between family empowerment and preventive behaviors related to dementia among older adults.*
Methods: *This study was an analytical, observational, cross-sectional study conducted in Indonesia. A total of 160 families of older adults were sampled. Samples were obtained via cluster sampling. The inclusion criteria were children aged 18-60 years who lived in the same household as older adults for at least one year. To collect data, a questionnaire on the demographic characteristics of older adult families was used; it included a family empowerment questionnaire measuring families' ability and motivation to participate in dementia prevention and a dementia prevention behavior questionnaire assessing actual preventive actions. To examine the relationship between the two variables in this study, the Spearman Rho test was utilized.*
Results: *This study showed significant correlations between educational participation ($p = 0.01$; $r = 0.202$), problem-solving ($p = 0.01$; $r = 0.203$), and perceived threat ($p = 0.005$; $r = 0.945$) with dementia prevention behavior.*
Conclusion: *Family empowerment through educational participation, problem-solving, and perceived threat is associated with dementia-prevention behavior among families. Family empowerment programs should be developed by health care providers who work with families and aging programs, so they can be used as part of efforts to reduce dementia incidence among older adults.*

Keywords: *Dementia, older adults, family empowerment, prevention, good health and well-being.*

DOI: https://doi.org/10.47307/GMC.2026.134.S1.10

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Recibido: 10 de noviembre 2025
Aceptado: 26 de diciembre 2025

RESUMEN

Introducción: *Uno de los principales problemas de salud en las personas mayores es el mayor riesgo de demencia. Esta afecta no solo a la persona que*

la padece, sino también a su familia, su principal sistema de apoyo. La familia desempeña un papel estratégico en la prevención o en el retraso de la aparición de los síntomas de demencia mediante el empoderamiento familiar. Este estudio tiene como objetivo explorar la relación entre el empoderamiento familiar y las conductas preventivas de la demencia en adultos mayores.

Métodos: *Este estudio fue observacional analítico, de diseño transversal, realizado en Indonesia. Se muestreó a un total de 160 familias de adultos mayores mediante el método de muestreo por conglomerados. Los criterios de inclusión fueron: ser hijo de adultos mayores de 18 a 60 años que convivieran con personas mayores durante al menos un año. Para la recopilación de datos, se utilizó un cuestionario sobre datos demográficos de las familias de adultos mayores. Los cuestionarios utilizados fueron un cuestionario de empoderamiento familiar, que mide la capacidad y la motivación de las familias para participar en la prevención de la demencia, y otro cuestionario de conductas preventivas, que evalúa las acciones preventivas reales. Para examinar la relación entre las dos variables en este estudio, se utilizó la prueba de rho de Spearman.*

Resultados: *Este estudio mostró una correlación significativa entre la participación educativa ($p = 0,01$; $r = 0,202$), la resolución de problemas ($p = 0,01$; $r = 0,203$) y la percepción de amenaza ($p = 0,005$; $r = 0,945$) y las conductas de prevención de la demencia.*

Conclusión: *El empoderamiento familiar a través de la participación educativa, la resolución de problemas y la percepción de amenaza son factores asociados con las conductas de prevención de la demencia en las familias. Los profesionales de la salud que trabajan con familias y programas de envejecimiento deberían desarrollar programas de empoderamiento familiar que puedan incorporarse a los esfuerzos por reducir el número de casos de demencia en adultos mayores.*

Palabras clave: *Demencia, adultos mayores, empoderamiento familiar, prevención.*

INTRODUCTION

The increasing proportion of older adults is a global phenomenon with significant implications for various aspects of life, including health. One of the main health issues in the elderly is the increased risk of dementia, a syndrome characterized by decreased cognitive function that affects the ability to think, remember, and communicate (1). Dementia significantly impairs cognitive functioning and adversely affects the quality of life, leading to substantial behavioral changes and long-term health consequences in the elderly (2). Dementia not only affects the individual who experiences it, but also the family as the main support system (3).

World Health Organization (WHO) 2023 Global Dementia Observatory, indicates that more than 55 million older adults are currently living with dementia, with a prevalence rate of approximately 4 %-9 %. Dementia ranks as the seventh leading cause of death worldwide and is one of the primary contributors to disability and dependency among the elderly. By 2050, the global number of individuals affected by dementia is projected to reach 115.4 million (4). The Alzheimer's Association Report 2023 explains that dementia cases are increasing, with 6.7 million people aged 65 and older currently living with dementia in the United States. This number is projected to increase to 13.8 million by 2060 if no breakthroughs are developed to prevent dementia (5).

The family has a strategic role in preventing or delaying the onset of dementia symptoms through family empowerment (6). Family empowerment is the extent to which the family has the ability, confidence, and resources to provide care support, including various efforts to increase the family's capacity to support the health of the elderly, such as providing a supportive environment, encouraging a healthy lifestyle, and improving health literacy related to dementia (7). The active role of the family in this empowerment can contribute to the implementation of dementia prevention behaviors in the elderly, dementia prevention behavior is defined as a series of actions and healthy lifestyles that individuals consistently undertake to reduce the risk of cognitive impairment and dementia by controlling modifiable risk factors, such as maintaining a healthy diet, routinely doing physical activity, engaging in social activities, and training the brain through activities that stimulate cognition (8). Empowerment through the Family Caregiver Empowerment Model (FCEM) theory can improve dementia prevention behaviors among the elderly by strengthening family knowledge, which in turn increases self-efficacy in caring for the elderly, thereby encouraging changes in healthy behaviors and compliance with dementia prevention efforts. Family empowerment,

family data provided by local health workers and then grouped by region using cluster sampling techniques.

The inclusion criteria for this study were adult children aged 18-60 who had lived in the same household with elderly people for at least 1 year. Exclusion criteria included family members with health problems that prevent them from caring for the elderly, and family members caring for elderly people with dementia. Family members of elderly people with dementia were excluded because the focus of this study was on preventive behaviors, not on the management or care of existing dementia. Data collection was conducted in Indonesia in September 2024. Data was collected door-to-door with assistance from local health workers. Before collecting data, the researcher explained the study's objectives and procedures. Verbal consent was obtained from respondents, followed by their signing a written consent form to participate in the study. To collect data, a questionnaire on the demographic characteristics of older adult families (age, education, and income) and a family empowerment questionnaire adapted from previous research, using items from the Education Participation Scale–A (EPS-A) by Álvarez-Dardet et al. (12), problem-solving from No (2023), the Perceived Threat Questionnaire, and a questionnaire on dementia prevention behavior adapted from Kim (13) were used.

The demographic data questionnaire consists of 3 questions, namely 1) age, is a multiple choice question that can be filled in by elderly families, namely 18-40 years: 1 and 41-60 years: 2; 2) Education, with answer choices No school: 1, elementary school: 2, junior high school: 3, high school; 3, and college: 4. 3) Family income consisting of <Rp.2 800 000: 1 and >Rp.2 800 000: 2.

The family empowerment questionnaire comprises 56 items, organized into the following dimensions of family empowerment: family empowerment, family cohesion, and family connectedness. Emotional intelligence consists of 3 dimensions, 1) Educational participation (1-24), this domain focuses on families to play an active and effective role in providing education or insight to their family members to improve and enhance overall well-based on the Family Centered Empowerment Model (FCEM), can improve coping, sense of responsibility, self-confidence, and overall quality of family life, both psychologically and overall, as well as understanding of family reality to inform decision-making across domains of educational participation, problem-solving, and perceived threats (9).

The relationship between family empowerment and dementia prevention behaviors among older adults is increasingly important to study and understand, as the family is often the first unit involved in elderly care (10). This study contributes innovatively by integrating the Family Caregiver Empowerment Model (FCEM) to explain how increased knowledge, self-efficacy, and family support can influence dementia-preventive behaviors among the elderly and by providing local empirical evidence on the effectiveness of family empowerment in improving these behaviors. By increasing family empowerment, it is expected that dementia-prevention behaviors among the elderly can be implemented more effectively, thereby maintaining the quality of life of the elderly and minimizing the burden on families and communities related to dementia (11).

This study aims to explore the relationship between family empowerment and dementia prevention behaviors in older adults aged 60 years and over who are at high risk of cognitive impairment, to provide recommendations for effective intervention strategies in a public health context.

METHODS

This study is an analytical, observational, cross-sectional study conducted in Indonesia. In this study, the design was used to explore the relationship between family empowerment and dementia-prevention behavior among older adults. Calculation of large samples using the G*Power application on dementia prevention behavior, with the effect size used is medium (f2=0.15), Significance level (α) is (α=0.05), Power with a standard size of 0.80. Based on the sample size calculation using G*Power above, a total of 160 samples were collected from elderly

being, 2) problem-solving (25-49), problem solving refers to the abilities and processes used by families to identify, understand, and overcome problems they face in various areas of their lives, 3) perceived threat (50-56), perceived threat refers to how families or individuals see and experience challenges or dangers that can affect their well-being (14). In the educational participation dimension, the Education Participation Scale–A. The questionnaire was adapted from (12). This questionnaire has been tested for validity and reliability on all items, with the correlation coefficient values (r count) exceeding the table values (r-table), and the reliability test yielded a Cronbach's alpha of 0.938. In the problem-solving dimension, the problem-solving questionnaire was adapted and validated, with all items retained. The correlation coefficient values were r_count> r_table, and the reliability test yielded a Cronbach's alpha of 0.873. In the perceived threat dimension, adapted from the Perceived Threat Questionnaire, the questionnaire was tested for validity and reliability across all items; correlation coefficients (r count) exceeded the table values (r table), and reliability was assessed using Cronbach's alpha, which yielded 0.940. All questionnaires use a 5-point Likert-scale response format: strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1 for favorable, and the reverse for unfavorable. Scoring of answers: good (>76 %), moderate (50 %-74 %), and poor (<50 %). These limits are based on Likert-scale category conversion rules commonly used in psychometric research.

The dementia prevention behavior questionnaire consists of 14 statements. This questionnaire is adapted from (15). This questionnaire was tested for validity and reliability across all items. The correlation coefficient (r) exceeded the table value (r), and the reliability test yielded a Cronbach's alpha of 0.745, indicating that the questionnaire was valid and reliable for measuring dementia prevention behavior. The answer choices use a Likert scale, with 4 = favorable, 3 = often, 2 = sometimes, and 1 = never for favorable, and the opposite for unfavorable. Scoring of answers: good (>76 %), moderate (50 %-74 %), and poor (<50 %). These limits are based on Likert-scale category conversion rules commonly used in psychometric research.

Statistical analysis was performed using SPSS version 26, incorporating both univariate and bivariate analyses. The univariate analysis results are presented as frequencies and percentages to describe respondent characteristics. To examine the relationship between the two variables in this study, the Spearman Rho test was utilized. To control for potential confounding factors (age, education, income, care burden, and length of stay with the elderly), the regression model is an integrated ordinal logistic regression. Participants were informed that their participation in the study was voluntary and that they could withdraw at any time. They were also assured that their data would be used exclusively for scientific purposes and that their identities would remain confidential. The study adhered to the principles outlined in the Declaration of Helsinki and received approval from the Health Research Ethics Committee of the Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia (No. 3369-KEPK).

RESULTS

Table 1 shows that most respondents are 41-60 years old [n=96; 60.0 %], that their most recent education is senior high school [n=56; 35 %], and that their income is below the minimum wage.

Table 2 shows that most educational participation and dementia-prevention behaviors fall into the good category [n=65; 40.6 %]. Most problem-solving falls within the moderate category, whereas dementia prevention behavior is in the good category [n=74; 46.3 %]. The majority of perceived threats are in the good category, with dementia prevention behavior also rated as good [n=74; 46.3 %]. This study shows significant correlations between educational participation ($p = 0.01$; $r = 0.202$), problem-solving ($p = 0.01$; $r = 0.203$), and perceived threat ($p = 0.005$; $r = 0.945$) with dementia prevention behavior.

Table 1. Characteristics of respondents

Variables	Dementia Prevention Behavior				
	Poor n (%)	Moderate n (%)	Good n (%)	Total n (%)	Spearmen Rho Test
Educational Participation					
Poor	0 (0)	0 (0)	0 (0)	0 (0)	
Moderate	10 (6.3)	22 (13.8)	38 (23.8)	70 (43.8)	p = 0.01
Good	4 (2.5)	21 (13.1)	65 (40.6)	90 (56.3)	r = 0.202
Problem-Solving					
Poor	0 (0)	0 (0)	0 (0)	0 (0)	
Moderate	11 (6.9)	41 (25.6)	74 (46.3)	126 (78.8)	p = 0.01
Good	3 (1.9)	2 (1.3)	29 (18.1)	34 (21.3)	r = 0.203
Perceived Threat					
Poor	0 (0)	0 (0)	0 (0)	0 (0)	
Moderate	3 (1.9)	14 (8.8)	29 (18.1)	46 (28.7)	p = 0.005
Good	11 (6.9)	29 (18.1)	74 (46.3)	114 (71.3)	r = 0.945

Table 2. The relationship between family empowerment and dementia prevention behaviors in older adults

Characteristics	n	%
Age		
18-40 Years	64	40.0
41-60 Years	96	60.0
Education		
No Education	20	12.5
Elementary School	27	16.9
Junior High School	9	5.6
Senior High School	56	35.0
University	48	30.0
Income		
< Regional Minimum Wage	107	66.9
> Regional Minimum Wage	53	33.1

DISCUSSION

Correlations between family empowerment and dementia-prevention behaviors among older adults include educational participation, problem-solving, and perceived threat. Effective family empowerment is achieved through the engagement of older adults in dementia-prevention behaviors. The abstracts provide evidence of the positive impact of family empowerment on caregiving and the management of dementia (16). Family empowerment provides emotional support, effective health management, physical and mental activity, stress management, and appropriate education. Families can create an environment that supports effective dementia prevention (17).

The correlation between families' educational participation and dementia prevention is weak but statistically significant, indicating that a slight increase in one variable is associated with a small increase in the other. This study shows a correlation between educational participation and preventive behaviors for dementia. This study aligns with research by Liu et al. (18), which found that family education on dementia prevention significantly increased adherence to healthy lifestyle modifications to prevent dementia. The review emphasized that families exposed to structured educational interventions exhibited higher rates of activity engagement, including puzzle-solving, social interaction, and exercise routines. Educational participation in families plays a critical role in shaping health-related behaviors, including those aimed at preventing dementia. Dementia is a growing public health concern, and prevention strategies often emphasize the importance of awareness, early intervention, and healthy lifestyle practices. Family education programs that target knowledge dissemination and skill-building are pivotal in promoting these behaviors (19).

Active engagement in educational initiatives equips families with a better understanding of risk factors associated with dementia, such as poor diet, physical inactivity, and lack of mental stimulation (20). Moreover, it fosters a supportive environment in which family members can collaborate to adopt and sustain preventive behaviors. For instance, families with higher levels of participation in health education are more likely to encourage regular cognitive activities, balanced nutrition, and physical exercise, key factors in reducing dementia risk (21).

The correlation between family problem-solving and dementia prevention behaviors is pivotal in promoting these behaviors. This study demonstrates a significant relationship between problem-solving and dementia prevention behavior. These findings align with research conducted by Lim et al. (22), which examined the influence of intergenerational problem-solving on dementia prevention. Families with effective intergenerational communication tend to engage in preventive behaviors, such as encouraging aging family members to stay active and socially connected. Effective problem-solving is characterized by open communication, collaborative decision-making, and constructive challenge addressing. These skills enable families to identify and implement strategies that mitigate dementia risk factors, such as unhealthy lifestyles, social isolation, and stress (23). Families with strong problem-solving skills are better equipped to adopt and sustain dementia-prevention behaviors. For example, they may collectively plan healthier meals, encourage regular physical activity, and create routines for cognitive stimulation, such as engaging in puzzles, reading, or social interactions. Additionally, such families are more likely to seek information about dementia prevention, attend educational programs, and adapt their behaviors based on new knowledge (24).

The correlation between perceived threat within the family and dementia-prevention behavior is bidirectional, as they mutually reinforce one another. This study found a significant correlation between perceived family threat and dementia prevention behavior. This study aligns with research by Garand et al. (25) on community-based intervention studies. Families educated about dementia risk and prevention strategies showed improvements in threat perception, resulting in significantly increased participation in activities such as cognitive training and health check-ups. Perceived threat in the family refers to the recognition and concern about the risks and potential consequences of a particular problem, specifically dementia. When families perceive dementia as a significant threat, they tend to take proactive action to reduce the risk (26). An increased sense of perceived threat can motivate families to seek information about dementia, participate in educational programs, and implement lifestyle changes, including adopting a nutritious diet, increasing physical activity, and engaging in activities that stimulate cognitive function (27).

Family empowerment reduces cognitive decline by encouraging health-protective behaviors such as physical activity, a healthy diet, and cardiovascular management that maintain brain function and prevent neurodegeneration. Psychosocially, family empowerment increases self-efficacy, health literacy, and emotional support, thereby improving adherence to preventive measures and cognitive resilience (28). Family empowerment also interacts with social determinants such as income, education, and cultural norms, which shape caregiving capacity and health decisions; culturally adapted empowerment ensures equitable and sustainable dementia prevention (29).

Various psychosocial factors, including educational participation, problem-solving skills, and perceived threat within families, influence dementia prevention behavior. Each domain of educational participation, problem-solving, and threat perception plays a distinct yet interrelated role in shaping dementia-prevention behaviors. Families who perceive dementia as a serious threat are more motivated to seek knowledge and participate in educational activities aimed at prevention. When this awareness is combined with strong problem-solving skills, families are better able to translate their knowledge into concrete health actions, such as adopting a healthy lifestyle or effectively managing risk factors. Thus, threat perception provides a motivational boost, problem-solving skills enable practical implementation, and educational participation bridges awareness into sustained preventive behaviors.

This study has several limitations. First, a cross-sectional design limits the ability to establish causal relationships between family empowerment and dementia prevention behaviors. Second, the use of self-administered questionnaires may introduce recall or social desirability bias, as participants may overreport positive behaviors or perceived empowerment. Third, the sample was drawn from a specific geographic and cultural context, which may limit the generalizability of the findings to other populations. Finally, potential confounding factors, such as comorbidities, caregiving stress, and access to healthcare services, were not fully controlled for. Future studies should employ longitudinal or experimental designs and include diverse populations to validate and expand upon these findings.

CONCLUSION

Family empowerment through educational participation, problem-solving, and perceived threat are interrelated factors associated with families' dementia prevention behavior. While each contributes uniquely, their combined effect is greater than the sum of their parts. By fostering knowledge, enhancing practical skills, and balancing motivation, families can create a supportive environment that promotes long-term cognitive health and resilience. Family empowerment programs must be developed by health workers who handle family and elderly programs so that they can be used as part of efforts to reduce the number of dementia cases in older adults.

Acknowledgments

The Indonesian Ministry of Higher Education, Science, and Technology funds this research.

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