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The Effect of the Resilience Quotient Program with Social Support among the Elderly with Chronic Non-Communicable Diseases

Thitchaya Piyaphattanuschai, and Sunisa Chuaktong*

Mental Health and Psychiatric Nursing Group, School of Nursing, Rangsit University, Pathum Thani 12000, Thailand

*Corresponding author; E-mail: sunisa.c@rsu.ac.th

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Abstract

Elderly people naturally experience physiological changes, leading to an increased susceptibility to chronic health conditions. Providing social support and enhancing the resilience quotient level can facilitate adaptation and enable them to maintain a fulfilling lifestyle even in challenging circumstances. This study aimed to investigate the effect of the Resilience Quotient (RQ) program with social support on the RQ level among the elderly with chronic non-communicable diseases. A quasi-experimental research design with a pretest and post-test approach was employed in this study. The sample consisted of 60 elderly people who resided in Pathum Thani Province, Thailand, randomly divided into 30 each in the experimental and control groups. The experimental group underwent the Resilience Quotient program with social support, which was developed by the researchers, while the control group received standard care. The 30-question resilience variable questionnaire was used to measure the Resilience Quotient level. The data were analyzed using descriptive statistics and t-test statistics. The findings demonstrated a statistically significant increase in the average resilience quotient score of the elderly in the experimental group after participating in the program. This improvement was observed compared to their scores before the program ($t = 16.73$, $p < .001$). Furthermore, the average resilience quotient score of the experimental group was statistically superior to that of the control group, which received standard care ($t = 16.21$, $p < .001$). The program facilitates a significantly higher resilience quotient level in the experimental group. The results were limited in generalizability to describe the elderly residing in urban areas due to family structure and social service diversity. To comply with Thailand's Elderly Care Strategic Plan, community health nurses should consider arranging activities that enhance RQ levels into routine primary care for the elderly with NCDs in the community to promote their health, prevent disease, and manage chronic conditions.

Keywords: *Chronic Non-Communicable Disease; elderly; resilience quotient; social support*

1. Introduction

1.1 Elderly and Chronic Non-Communicable Diseases

The global population aged 60 years and surpassed 1,082 million, accounting for 14% of the total population in 2021. In 2050, the proportion of the world's aging population will nearly double to approximately 22%. This demographic shift has led to the emergence of an aging society globally (WHO, 2024). Thailand was projected to transition into a fully aged society by 2022, with approximately 20% of its population classified as elderly. By 2031, the country is expected to experience a super-aged society, where the elderly population will account for more than 28% of the total population (Foundation of Thai Gerontology Research and Development Institute, 2022). As individuals age, they encounter various natural changes, including a decline in physical fitness and an increased prevalence of chronic health conditions. These conditions often manifest as chronic diseases,

such as diabetes, hypertension, cerebrovascular disease, heart disease, asthma, and others.

According to the findings of a previous study, the prevalence of chronic non-communicable diseases (NCDs) among the Thai elderly was determined. Notably, hypertension, dyslipidemia, and diabetes were the three most prevalent conditions, and these NCDs may lead to serious health complications such as heart disease, stroke, and chronic kidney disease (Boontong et al., 2024; Ray, & Pareek, 2023). These diseases are incurable and require lifelong treatment, increasing the risk of developing geriatric syndromes (Ogaz-González et al., 2024). The psychological changes associated with these conditions are primarily attributed to physical deterioration, leading to disability and limitations in daily living (Boontong et al., 2024; Bulamba et al., 2024). Some individuals have experienced the loss of close companions during this period, partly due to the alteration of their social status as a result of aging, which is influenced by the perception of age and social acceptance. The elderly may encounter feelings of being marginalized by younger generations, which can lead to a sense of discouragement and a diminution of their self-esteem (Bulamba et al., 2024). Discouragement frequently manifests as a diminished sense of motivation and a profound sense of detachment. If elderly individuals are unable to adapt to these transformations, they may encounter challenges in adjusting to the evolving world surrounding them. This psychological resilience, also known as the resilience quotient, serves as a crucial force that enables the elderly to overcome various challenges and crises in their lives, including chronic illnesses (Moore, 2023).

1.2 Resilience Quotient Concept

Resilience Quotient (RQ) quantifies an individual's capacity to adapt and recover from adversity, particularly chronic diseases. This resilience facilitates effective problem management, crisis resolution, and prompt restoration of emotional and mental well-being, mitigating excessive distress and enabling individuals to resume fulfilling and joyful lives (Niitsu et al., 2017; Al Asfoor et al., 2024; Piyaphattanuschai et al., 2024b). Internal strength encompasses an individual's self-development, nurtured by social connections. Older adults with robust RQ exhibit the capacity to adapt to change and derive satisfaction from their lives (Chueakjoho, & Udchumpisai, 2023; Wang et al., 2024).

1.3 Resilience Quotient and Role of Social Support among the Elderly

The concept of Resilience Quotient (RQ) in older individuals is composed of two attributes: available resources and positive behaviors. It is defined as the positive attitudes and behaviors exhibited by older individuals, which are facilitated by the resources they have gained from experiences of adversity (Lima et al., 2023). The RQ can be categorized into three components: "I am," "I have," and "I can" (Maneerat et al., 2011). According to the previous studies regarding factors related to RQ of the elderly, many factors involving RQ were reported such as health perception, positive interpersonal relationships and spirituality (Qiu et al., 2023), optimism, self-esteem, adequate financial status (Ounlam, & Panpoklang, 2022); and religious beliefs, interdependent social culture, social networks, and social support, which are positively related to the RQ (Timalsina, & Songwathana, 2020). These factors are positively associated with RQ (Qiu et al., 2023; Piyaphattanuschai et al., 2024b). Furthermore, activities designed to promote RQ in the elderly have been associated with various positive mental health outcomes (Jansook et al., 2023), especially RQ-promoting programs with social support, which strengthen mental health outcomes (Sanphiboon et al., 2024; Upasen et al., 2024; Chavapattanakul et al., 2020). A previous study conducted by Wu and colleagues indicated that a web-based resilience-enhancing program is appropriate, acceptable, feasible, and engaging for community-dwelling elderly individuals. Furthermore, it has been shown to optimize resilience, physical activity, and well-being (Wu et al., 2024). Richer et al. (2025) developed stress management training (SMT) interventions and applied them to a group of elderly individuals. The study compared two groups: an experimental group and a control group. The results demonstrated a significant increase in the RQ level among the participants in the experimental group. This improvement led to the development of problem-solving coping strategies and a corresponding decrease in anxiety scores compared to the control group, three weeks after the intervention. Another previous study supports the RQ program, especially when integrating social support, improves the RQ of the elderly. Palmes and colleagues examined the relationship of coping strategies, quality of life, role of resilience, and social participation. The research findings indicated that coping strategies alone are insufficient for enhancing quality of life (QOL). The

sole means of improving QOL lies in cultivating resilience and the capacity for social engagement. In essence, the QOL of older adults can be enhanced by promoting their active participation in social activities (Palmes et al., 2021).

In Thailand, many previous studies have examined the impact of RQ among the elderly. Ratanasiripong et al. (2022) examined the impact of resiliency and associated factors on the mental health and quality of life among older adults in Thailand. The findings suggested that resilience, social support, and exercise are significant predictors of mental health and overall well-being. It appears that the RQ level has a significant impact on the mental health and overall well-being of elderly individuals. A study conducted by Jansook et al., (2023) revealed that after elderly individuals participated in the Resilience Enhancement Program for Elderly (REP-E), their mental resilience levels exhibited a substantial increase compared to their baseline levels before program participation. Thongkhum and co-workers (2022) developed a model of resilience promotion among elderly individuals with chronic diseases and depression and applied it to elderly people experiencing these conditions. The findings indicated that elderly individuals with chronic diseases and depression comprehended the significance and components of the RQ. They leveraged their unique strengths to enhance their emotional resilience when encountering challenges, adopted an optimistic perspective on problems, and sought assistance from the positive aspects of their surroundings to motivate them to overcome obstacles. This comprehension led to a significant increase in their mean RQ scores compared to their baseline levels before participating in the program (Thongkhum et al., 2022). Photipim et al., (2021b) have also provided empirical evidence demonstrating the impact of the RQ-promoting program on the resilience level of the elderly. The study found that resilience-enhancing programs among older adults led to a significantly higher resilience score in the experimental group compared to the control group, which received standard care.

Literature reviews indicate that resilience-enhancing programs integrated with social support for elderly individuals demonstrate a positive impact on resilience, physical activity, well-being, problem-solving, and coping strategies. The current programs are effective in elevating the RQ levels among the elderly population. However, to the best of our knowledge, the integration of social support in promoting RQ programs has been limited. This initiative may contribute to the sustainable development of resilience in the elderly population by establishing caring network partners within the community, in both the public and private sectors. Based on our experiences as psychiatric nurses providing community-based nursing care for elderly people with chronic NCDs, many of them struggle to adapt to the disease, which influences their mental health outcomes (Ounlam, & Panpoklang, 2022). To ensure the appropriate adaptation of the elderly with chronic NCDs to illness and maintain a good quality of life, it is crucial to encourage support from families and communities under the Thai Elderly Care Strategic Plan (Siriwan, 2024; The National Committee on the Elderly, 2009). This aligns with the strategy outlined in the Action Plan for the Elderly Phase 3 (2023-2037) to comprehensively and equitably enhance the quality of life for the elderly in all dimensions.

2. Objectives

The objective of this study was to investigate the effect of the RQ program with social support on the RQ levels among the elderly with chronic NCDs.

3. Materials and Methods

3.1 Study Design

Quasi-experimental research with two groups and a pretest-posttest design, was employed in this study.

3.2 Population, Sample, and Study Setting

The population comprised older adults aged 60 years and above, regardless of gender, who were living in the community and domiciled in Pathum Thani Province, Thailand. A purposive sampling technique was used to recruit the study participants. The samples were recruited according to the inclusion criteria, which included:

1. Absence of cognitive impairments, including problems with perception, person, time, and place.
2. Self-reliance and independence.
3. Low to moderate RQ score, as assessed using the RQ Assessment tool.
4. Proficiency in the Thai language and the ability to read and write.

Elderly individuals with physical illnesses that hindered the provision of information and those with mental illnesses were excluded from the study.

The sample size and effect size were calculated using the mean RQ score, and standard deviation obtained from a previous study's results (Photipim et al., 2021b). The study involved similar variables and

populations; thus, it was properly used as a reference for effect size determination, and a large effect size was recommended. Thereafter, the G*power program version 3.1.9.4 was used to calculate the sample size, and the analysis revealed a significance level of .05 and a test power of .90 (Cohen, 1988), suggesting a minimum sample size of 56 participants. Consequently, we increased the sample size by 10% to compensate for potential dropouts (In et al., 2020; Polit, & Beck, 2021). The final sample size consisted of 60 elderly individuals, who were then randomly classified into the experimental and control groups using a computer-based lottery program. Ultimately, 30 elderly individuals were allocated to each group.

3.3 Conceptual Framework

The concept of RQ was applied as a conceptual framework in this study. The essence of RQ is defined as an individual's capacity to confront life's challenges. This empowerment is characterized by three distinct elements: "I have" (external support), "I am" (internal capabilities derived from accumulated learning), and "I can" (problem-solving skills and overall interpersonal relationships) (Grotberg, 1995). The development process facilitates the elderly's adaptation to life's difficulties, particularly in adjusting to societal roles. Chronic illnesses can lead to a range of psychological conditions. As per the review, factors that contribute to the mental well-being of the elderly include social support, networking, the development of strong interpersonal relationships, and the cultivation of internal resources that foster self-confidence and the ability to manage challenges effectively, which are essential components of personal growth and resilience (Ounlam, & Panpoklang, 2022; Timalsina, & Songwathana, 2020; Qiu et al., 2023; Piyaphattanuschai et al., 2024b). Consequently, the RQ program in this study was developed, integrating the concept of social support proposed by House (1981), which emphasized the importance of continuous interaction between families or communities in fostering mental health among this population.

3.4 Research Instruments

3.4.1 Intervention Tools

1) The RQ program with social support

The RQ Program with social support was developed by the researchers based on the concept of the resilience quotient of Grotberg (1995). This framework aims to empower the mental health of elderly individuals with chronic non-communicable diseases by addressing the factors that contribute to their well-being. The concept of social support proposed by House (1981) was integrated, emphasizing the importance of continuous interaction between families or communities in fostering mental health among this population. The program activities were structured to provide 2 activities in one week, approximately 90 minutes per activity, and it was performed in total for four weeks. These activities were scheduled to be held twice a week, on Tuesdays and Fridays, with an additional 30-minute homework session (self-reflection with their family) for the elderly each day. The program's activities were sequenced as follows: (1) Empowering the mind, (2) Self-discovery and self-awareness, (3) Achieving personal goals, (4) Cultivating mindfulness for a purposeful life, (5) Overcoming challenges, (6) Recharging the heart with life, (7) Building a supportive network, and (8) Farewell. The details of the program activities are presented in Table 1.

2) The development of the program

The program was developed in two phases, comprising the development phase and the validation phase. In the development phase, the possible activities based on previous studies (Photipim et al., 2021b; Ratanasiripong et al., 2022; Thongkhum et al., 2022; Jansook et al., 2023) with the concept of RQ (Grotberg, 1995) were discussed and aligned with the components of RQ ("I have," "I am," and "I can"). Seven activities and one farewell session were generated and added to the program.

3) The validations of the program

In the validation phase, five experts, comprising three psychiatric nursing instructors, 1 community health nurse, and one internal medical physician, were asked to validate the program activities. Face validity and content validity were assessed to evaluate the validity of the program activities. Regarding face validity, all experts found that the program activities were readily comprehensible. The item content validity index (I-CVI) was assessed by experts to evaluate the relevance and content validity of the program activities (Polit, & Beck, 2021). The I-CVI indicated a high content validity of the program activities, with a value of 0.80. The intraclass correlation coefficient (ICC) was calculated to assess the inter-rater reliability of the program activity, and the results demonstrated an ICC value of 0.7, indicating a good inter-rater reliability (Polit, & Beck, 2021). The procedure for developing and validating the program activities is illustrated in Figure 1.

Table 1 The program's structure and activities

Activities	Related RQ	Social support	Briefly content	Objective of the activity
Activity 1: Empowering the mind.	I am.	• Emotional support.	• Establish relationships and trust. • Encourage group members to share experiences and support each other.	To build relationships within the group and have confidence and self-esteem.
Activity 2: Self-discovery and self-awareness.	I am.	• Appraisal Support. • Emotional support.	• Share valuable experiences that will benefit future generations and demonstrate the strengths to members through practical examples.	To learn and apply their distinctive strengths in diverse circumstances.
Activity 3: Achieving personal goals.	I am.	• Appraisal Support. • Emotional support.	• Clearly articulate one own goals and strategies for achieving success.	To recognize their own potential in managing chronic diseases and cultivating self-esteem.
Activity 4: Cultivating mindfulness for a purposeful life.	I can.	• Emotional support.	• Integrate mindfulness into daily routines. Begin by cultivating mindfulness in the thoughts and emotions.	To comprehend the advantages of mindfulness in problem resolution.
Activity 5: Overcoming challenges.	I can.	• Information Support.	• Cultivate creative problem-solving skills.	To view challenges/problems from a positive perspective and develop independent solutions.
Activity 6: Recharging the heart with life.	I have.	• Information Support. • Emotional support.	• Self-encouragement to improve the strength in overcoming the crisis.	To recognize the resources available for self-encouragement.
Activity 7: Building a supportive network.	I have.	• Information Support. • Emotional support. • Strong internal resource.	• The participants and their families collaborated with a community healthcare team network to establish a collaborative approach for providing support and care.	To establish comprehensive guidelines for constructing a community-based health network that provides tangible and proactive support.
Activity 8: Farewell.	Summarize and discuss.		• Comprehensive summarization.	To provide a comprehensive summary of all the advantages derived from the program and the termination session.

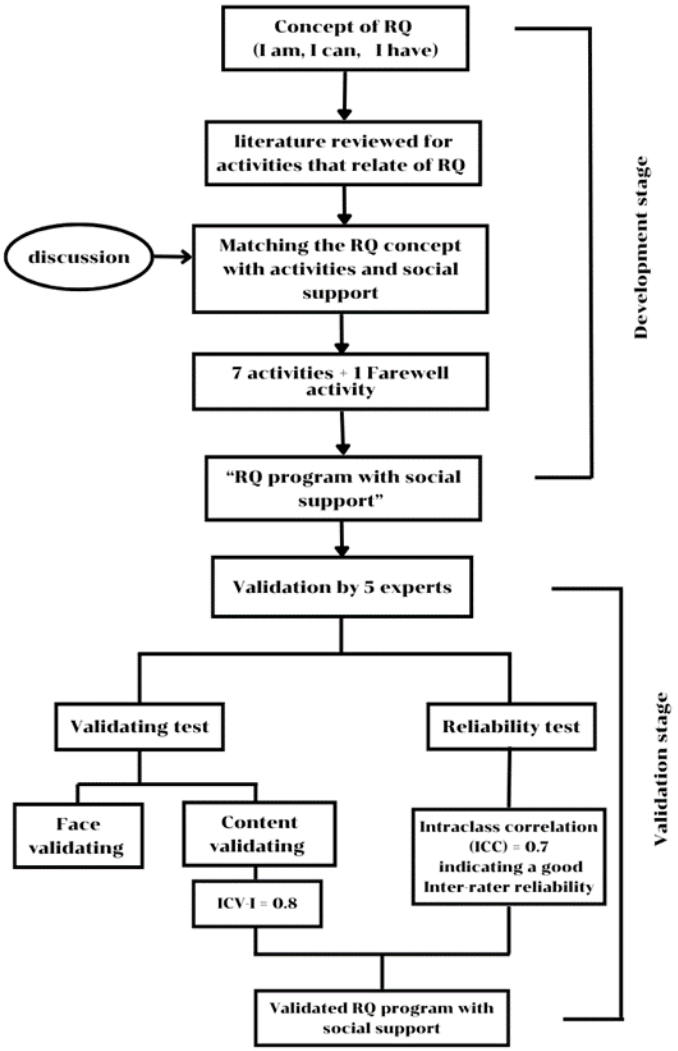

Figure 1 The procedure for developing and validating the program activities

3.4.2 Assessment Tools

1) The demographic questionnaire consisted of common personal information, including gender, age, marital status, religion, highest education level, occupation, main source of income, adequacy of income, congenital diseases, and duration of living with the disease.

2) The resilience variable questionnaire developed by Photipim et al., (2021a) was used, with permission from the developers, to measure the RQ level. The questionnaire comprised 30 questions, categorized into three distinct Aspects: aspect 1: "I am" (10 questions), Aspect 2: "I have" (10 questions), and Aspect 3: "I can" (10 questions). The scoring system employed a five-point Likert scale, including strongly disagree (5 points), disagree (4 points), moderately agree (3 points), agree (2 points), and strongly agree (1 point). The evaluation criteria were divided into three distinct levels, comprising high RQ (score range of 111-150), moderate RQ (score range of 71-110), and low RQ (score range of 30-70). The questionnaire was applied and pilot-tested in a group of 30 elderly individuals who were similar to the study sample. A confidence coefficient of internal consistency reliability was calculated; the Cronbach's alpha coefficient was 0.90, indicating good internal consistency reliability (Cohen, 1988; Polit, & Beck, 2021) before being applied to the study samples.

3.5 Data Collection

The control group comprised the elderly individuals with NCDs who underwent a pre-test to evaluate their RQ level and received standard health services through the regular healthcare system. They were asked to complete the variable resilience questionnaire to assess their RQ level in the upcoming month. In contrast, the experimental group underwent a pre-test to evaluate their RQ level before participating in a group activity, an eight-week program that integrated RQ promotion with social support. The Health Promoting Hospital, located within a subdistrict of Pathum Thani Province, was selected as the designated venue for the program's implementation. The program was conducted biweekly, with each session lasting 90 minutes. One month after the intervention, they were asked to complete a post-test to assess their RQ level.

3.6 Data Analyses

The data were analyzed using a statistical software package. The demographic characteristics of the study participants were described using descriptive statistics. A chi-squared test was employed to compare the characteristics of the participants between the two groups. The mean RQ scores of the control and experimental groups were presented and compared using the dependent t-test. Additionally, the differences in mean RQ scores between the control and experimental groups that received the program with social support were measured using the independent t-test. The statistical analysis was conducted with a significance level set at 0.05.

3.7 Ethical Considerations

This study was ethically approved by the Research Ethics Committee, Rangsit University of Thailand, under Certification Document No. RSUERB2023-203 (Approval Date: 15 December 2023). The purpose and method of conducting the research were described and clarified before data collection began. The participants were required to participate in the study voluntarily. Informed consent was obtained and signed before the commencement of the program and data collection. The results of the study were presented confidentially.

4. Results

4.1 Sample Description

This study comprised 60 samples, divided into 30 for the experimental group and 30 for the control group. The experimental group exhibited a higher female representation compared to the male population, comprising 83.3% and 16.7%, respectively. Similarly, the control group also had a higher female representation, with 83.3% and 16.7%, respectively. In terms of age, the experimental group had an average age of 66.50 years, while the control group had an average of 67.77 years. When comparing the general characteristics of the experimental and control groups using chi-square statistics for gender, marital status, education level, occupation, income adequacy, chronic illnesses, and duration of illness, and using independent t-tests for age, it was determined that the general characteristics of both groups showed no significant differences. The details of the demographic characteristics of the participants are shown in Table 2.

4.2 RQ Levels among the Elderly

The findings revealed that the mean RQ scores of the elderly participants in the RQ program with social support showed a significant increase after attending the program ($M = 136.10$, $SD = 9.94$) compared to their pre-intervention scores ($M = 82.63$, $SD = 16.93$). This difference was statistically significant ($t = 16.73$, $p < .001$), as presented in Table 3.

For the control group, the results indicated that the mean RQ scores of the elderly participants after the intervention ($M = 82.63$, $SD = 15.10$) were not significantly different from their pre-intervention scores ($M = 84.23$, $SD = 12.93$) ($t = 1.55$, $p > .05$), as presented in Table 4.

Table 2 Baseline Demographic Characteristics

Demographic characteristics	Experimental group (n = 30)		Control group (n = 30)		x^2	p- value
	Frequency	Percentage	Frequency	Percentage		
Sex						
Male	5	16.7	5	16.7	.00	1.0
Female	25	83.3	25	83.3		
Age	(M = 66.50, SD = 6.9)		(*M* = 67.7, SD = 5.9)		T = .78	p = .45
Marital status						
Single/widowed/divorced	12	40.0	11	36.7	1.21	.75
Married	18	60.0	19	63.3		
Religion						
Buddhist	30	100	30	100	.00	1.0
Education Level						
Primary Education	18	60.0	17	56.7	0.87	0.99
High school education	8	26.7	9	30.0		
Certificate	3	10.0	3	10.0		
Bachelor's degree	1	3.3	1	3.3		
Occupation						
Unemployed	16	53.3	16	53.3	1.05	.79
Merchant	9	30.0	10	33.3		
Normal labor	4	13.3	4	13.3		
Pension Office	1	13.3	-	-		
Adequacy of income						
Adequate	11	33.7	11	33.7	.00	1.0
Inadequate	19	63.3	19	63.3		
Underlying disease						
1 Disease	5	16.7	6	20.0	6.76	0.08
2 Diseases	14	46.7	21	70.0		
3 Diseases	8	26.7	3	10.0		
More than 4 diseases	3	10.0	-	-		
Duration of illness						
Below 5 years	7	23.3	7	23.3	0.99	0.95
5 – 10 Years	8	26.7	7	23.3		
10 Years above	15	50.0	16	53.3		

Table 3 Comparison of Mean RQ Scores in the Experimental Group (Pre v.s. Post Intervention) (n=30)

RQ Scores	Mean	SD	df	t	p-value
Pre-test	82.63	16.93	29	16.73	.000
Post-test	136.10	9.94			

Table 4 Comparison of Mean RQ Scores in the Control Group (Pre v.s. Post Intervention) (n=30)

RQ Scores	Mean	SD	df	t	p-value
Pre-test	84.23	12.93	29	1.55	.066
Post-test	82.63	15.10			

Table 5 Comparison of Post-Intervention RQ Scores between Experimental and Control Groups

RQ Scores	(Exp. Group) n = 30		(Con. Group) n = 30)		df	t	p- value
	M	SD	M	SD			
Pre-test	82.63	16.94	84.23	12.93	58	0.41	.682
Post-test	136.10	9.94	82.63	15.09	58	16.21	.00

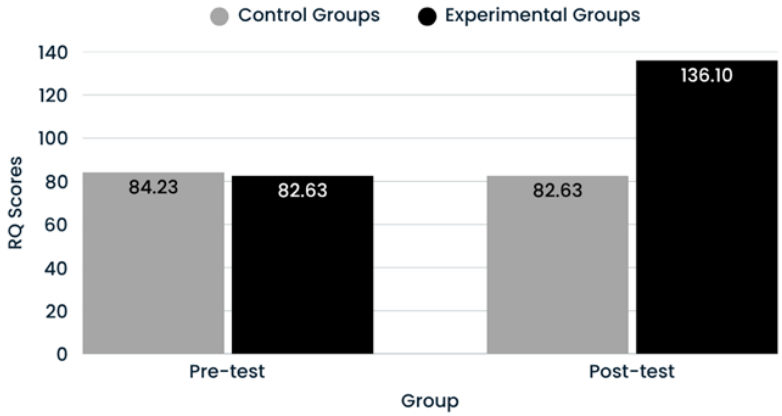

Figure 2 Comparison graph of pre- and post-intervention RQ scores between experimental and control groups

The mean RQ scores of the elderly in the experimental group (M = 82.63, SD = 16.94) were not significantly different from the control group (M = 84.23, SD = 12.93) before the intervention. However, after the intervention, the mean RQ scores of the experimental group (M = 136.10, SD = 9.94) were significantly higher than those in the control group (M = 82.63, SD = 15.09) ($t = 16.21$, $p < .001$), as presented in Table 5 and Figure 2 shows the comparison graph of pre- and post-intervention RQ scores between experimental and control groups.

5. Discussion

The findings revealed a significant difference in RQ scores among elderly participants who received the RQ program with social support compared to the control group. The experimental group showed a positive change in their RQ levels, as evidenced by an increase in their RQ scores after participating in the program, relative to their baseline scores and those of the control group that received standard care. These findings align with previous studies that have demonstrated the association between activities that promote RQ in the elderly and various positive mental health outcomes (Jansook et al., 2023). The high level of RQ among the experimental group is likely attributable to their participation in the RQ program with social support. They consistently engaged in the program for four weeks, which is a crucial period for health behavior changes (Michie et al., 2014). The high level of RQ is believed to be advantageous for the elderly with chronic illnesses, leading to effective disease management (Piyaphattanuschai et al., 2024a). Although our study only evaluated the level of RQ, it would be valuable to investigate the correlations between RQ level and health outcomes. Unsurprisingly, the RQ scores in the control group remained unchanged because elderly care primarily focuses on treating diseases and physical ailments due to the chronic and intricate underlying conditions of the elderly. This approach is essential to expedite the management of symptoms and the progression of the disease toward a stable state, thereby mitigating the severe complications that may ensue. Consequently, the elderly can preserve their ability to independently manage their daily routines. Notably, the care provided places a relatively low emphasis on the psychological dimension. Consequently, the RQ score did not show any significant changes.

Furthermore, our study program included activities that fostered social support for the elderly and demonstrated a significant increase in the RQ score among the experimental group. Social support has been positively associated with RQ level (Timalsina, & Songwathana, 2020) and leads to various positive mental health outcomes (Sanphiboon et al., 2024; Upasen et al., 2024; Chavapattanakul et al., 2020). The social supports implemented in our program consisted of emotional support, appraisal support, informational support, and strong internal resources. Activities related to emotional support promoted participants' awareness of their problems, consequences, and empathy (Babygeetha, & Devineni, 2024). Appraisal support was provided through activities that promoted self-awareness and participants' ability to manage crises or adapt to NCDs. This support fostered self-confidence in individuals' abilities to cope with illness (House, 1981). Informational support enabled participants to identify practical methods that lead to success in

managing NCDs. These supports enhanced the participants' sense of self-esteem, self-capacity, and problem-solving abilities and enabled them to comprehend their crisis management capabilities, consequently increasing their RQ levels (Al Asfoor et al., 2024; Piyaphattanuschai et al., 2024b). A robust internal resource was cultivated through strong connections established between the participants and their surrounding community members, including community health volunteers, community leaders, family members, and caregivers. Our program facilitated activities that encouraged participants to build these connections with the community members. This connection proved to be crucial support for the elderly, enabling them to manage the consequences of non-communicable diseases (NCDs) or navigate critical life events. By fostering a sense of belonging and acceptance within society, our program empowered the elderly to confront life-threatening challenges with greater resilience (Moore, 2023; Piyaphattanuschai et al., 2024b).

The implications of the RQ program with social support to a common practice may align with Thailand's Elderly Care Strategic Plan, which emphasizes promoting a better quality of life for older persons by reducing preventable disease and accidents, increasing community interaction, reducing working hours, and increasing income and savings (The National Committee on the Elderly, 2009). This practice may be used as guidance for primary healthcare nurses to provide primary care for the elderly with NCDs in the community to enhance their RQ levels, aiming to promote health and preventing disease, managing chronic conditions, and ensure safe and supportive environments. However, the RQ-enhancing strategy is not yet incorporated as a viable practice in Thailand's Elderly Care Strategic Plan. To effectively implement this strategy, it must be established through a national policy. Consequently, primary healthcare services could adopt the same policy to enhance RQ levels and promote family and community support for the elderly in managing and preventing chronic non-communicable diseases (NCDs). Ultimately, this would lead to improved quality of life and better health outcomes for the elderly population.

A potential limitation of this study is its design, as it was a cross-sectional study that investigated the RQ level of the elderly in a small rural community. Consequently, the results cannot be generalized to elderly individuals residing in urban areas due to differences in family structures and social services. Therefore, it is recommended that the scope of future studies be expanded to include a broader population. Although confounding factors such as illness severity, stressful life events, and coping strategies were not controlled for, a chi-squared test was employed to compare the characteristics of participants between the two groups, indicating homogeneity. This may have reduced the risk of RQ measurement errors (Polit, & Beck, 2021). However, to minimize such risks, matched-pairs testing concerning confounding factors was considered and will be applied in future studies. A relatively large number of participants in the program may also be considered a limitation. The participants were divided into morning and afternoon sessions of 15 individuals each. This required a significant time commitment, especially for elderly participants who needed thoughtful discussions and deliberations. This process required additional time and may have affected the accuracy of their RQ measurements. Although RQ level in the experimental group was elevated, there was no substantial correlation between RQ level and health outcomes. Future studies may consider exploring the correlations between RQ levels and health outcomes to investigate self-management strategies among elderly individuals with NCDs.

6. Conclusion

The RQ program, which incorporates social support, facilitates the development of RQ levels among the elderly. A comparative analysis of the two groups revealed a significantly higher RQ level among the elderly in the experimental group. The program in this study was conducted among elderly in rural areas, and the results cannot be generalized to those residing in urban areas due to differences in family structures and social services. This may have influenced the RQ level measurement and is therefore considered a study limitation. Elevated RQ levels are believed to be advantageous for elderly individuals with chronic illnesses, potentially leading to effective disease management. Therefore, the knowledge from this study may be beneficial and applied as guidance for primary healthcare nurses and healthcare professionals to consider incorporating activities that enhance RQ levels into routine care for the elderly with NCDs in the community. This practice supports Thailand's Elderly Care Strategic Plan, which aims to promote health, prevent disease, manage chronic conditions, and ensure safe and supportive environments.

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8. CRediT Statement

Thitchaya Piyaphattanuschai: Conceptualization, Methodology, Investigation, Writing – Original draft, Supervision, Funding acquisition.
Sunisa Chuaktong: Investigation, Statistical analysis, Data curation, Writing – review & Editing, Project administration.

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