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A Model of Self-Development for Enhancing Psychological Immunity of the Elderly

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The purpose of this study was to examine the effectiveness of a self-development intervention for enhancing psychological immunity of the elderly. The psychological immunity intervention (PI) was based on an integration of mindfulness, self-efficacy, and optimism approaches. The study was a quasi-experimental design, including pre-test and post-test with a control group. The sample was recruited from senior clubs in Bangkhunthian District, Bangkok, Thailand. Participants were divided into 2 groups. The intervention group (24 participants) participated in the PI intervention activities, and the control group (24 participants) did not receive any intervention. The PI intervention consisted of 10 sessions for 5 weeks which lasted for two hours per session. Participants from both groups completed the questionnaire at the beginning and at the end of the intervention. The results showed that participants in the PI intervention group scored significantly higher on psychological immunity ($F_{(1, 43)} = 15.04$, $p < .01$, partial eta-squared = .26) and psychological well-being ($F_{(1, 44)} = 23.33$, $p < .01$, partial eta-squared = .35) than did the control group. More specifically, participants receiving the PI intervention showed significantly greater psychological immunity in the domains of resilience, mindfulness, and hope than did the control group. The findings suggest that the intervention was beneficial for the elderly and senior clubs to improve psychological immunity and well-being. The study provides implications for enhancing psychological immunity from a behavioral science approach.

Keywords: psychological immunity, development, intervention, well-being, elderly

Decreasing population birthrates have moved Thailand towards an aging society since 2015. The change in population has also been affected by the fact that Thai elderly are living longer. It is estimated that Thailand will complete the transition to an aging society, where the elderly will constitute 20% of Thailand's population by 2021 and will increase to 30% of the population by 2035 (Foundation of Thai Gerontology Research and Development Institute, 2016). Due to an increase in the number of the elderly and the upcoming changing demographic structure, the government has paid attention to the lifestyle of the elderly. The Second National Elderly Plan (2002-2021) for the care and protection of the elderly has been established and implemented (National Elderly Committee, 2009). The plan also promotes the value of the elderly living with dignity and self-reliance.

In addition, the current Thailand's 12th National Economic and Social Development Plan (2017-2021), aims to develop quality citizens, nurture the qualities of Thai society, and enhance chances for everyone to live happily and harmoniously (Office of National Economic and Social Development Board, 2017). The plan was developed based on the philosophy of

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sufficiency economy for sustainable development. It focuses mainly on "People-Centered Development" in which people of all ages are developed and are well prepared for an aging society. The philosophy provides guidance on appropriate conduct covering numerous aspects of life that will lead to a better quality of life and a society that is able to cope appropriately with challenges arising from globalization and other changes.

Introduced by the late king of Thailand, His Majesty King Bhumibol Adulyadej, the philosophy of sufficiency economy stresses the principle of the middle path. Living according to the philosophy involves three practices (i.e. moderation, reasonableness, and self-immunity) and requires two conditions (i.e. knowledge and morality). Moderation concerns simplicity in which individuals do not go for the extremes. Reasonableness describes a decision-making practice that uses careful thoughts and information to calculate risks. Self-immunity refers to the ability of individuals to protect themselves from helplessness and insecurity risks and to cope appropriately with events that are unpredictable or uncontrollable. In other words, self-immunity reflects resilience and self-reliance or the ability to tolerate, deal with and recover from problems by oneself (Kansuntisukmongkol, 2017). These three practices require individuals to use knowledge to plan and make decisions, and to possess the morality to follow good conduct. With such a way of life, based on these three principles with the two conditions, Thai people would be able to live securely in harmony amongst rapid socioeconomic, environmental, and cultural changes in the world.

Among the three practices under the philosophy of sufficiency economy, self-immunity is the most essential element that is necessary to be instilled and developed in the elderly. This study aims to develop a self-development intervention and examine the effectiveness of the intervention for enhancing psychological immunity of the elderly.

Conceptual Perspectives and Studies on Psychological Immunity Interventions

Psychological Immunity

According to the philosophy of sufficiency economy, self-immunity is an important protective factor against behavioral problems and adversity such as helplessness and anxiety. It is suggested that individuals with high self-immunity are able to adopt adaptive strategies in order to deal with problems, such as spending more time and effort to solve problems. In addition, self-immunity serves an essential role in helping individuals to adapt functionally in the midst of challenges and difficulties. In other word, self-immunity can be defined in relation to the theory of the psychological immunity system. The psychological immunity system functions in parallel with the biological immunity system, as both are defensive and adaptive systems (Rachman, 2016). However, the psychological immunity system involves a cognitive and proactive approach in order to enhance psychological well-being.

Psychological immunity is a psychological construct that describes the ability to handle adversity and consists of five dimensions, namely resilience, mindfulness, coping, hope, and self-reliance (Choochom, 2013). For the elderly, resilience is the ability to retain or regain a psychological health after adversity such as illness or loss (Felten & Hall, 2001). Mindfulness defines an awareness of one’s thoughts, feelings and environments by focusing on the present moment and without being judgmental (Kabat-Zinn, 2003). Coping is a process in which individuals put their cognitive, behavioral, and emotional efforts to manage internal and external demands encountered during a stressful situation (Larzarus & Folkman, 1984). Hope

is described as an ability to find a way to motivate oneself to progress and achieve one's goals (Snyder et al., 1991). The primary focus of self-reliance is not on the ability of being physically self-reliant, but instead stresses the importance of one's cognitive and emotional capability to solve problems and overcome difficulty (Choochom, 2014).

Evidence from several studies suggests that the five positive characteristics of psychological immunity are related to each other, and also have an effect on positive psychological functioning (Choochom, 2013; Choochom, 2014; Keng, Smoski, & Robins, 2011). For example, mindfulness is positively associated with many indicators of psychological health, such as positive affect, life satisfaction, psychological well-being, adjustment, and adaptive emotion regulation (Keng et al., 2011). Similarly, many studies of mindfulness have reported on positive correlations between mindfulness and psychological health, life satisfaction, conscientiousness, self-esteem, empathy, sense of autonomy, competence, optimism, and pleasant affect. Studies have also demonstrated significant negative correlations between mindfulness and depression, difficulties in emotion regulation, and general psychological symptoms (Brown, Ryan, & Creswell, 2007).

Similarly, evidence from resilience research suggests that resilience is positively associated with optimal outcomes such as quality of life, happiness, successful aging, and mental health and wellbeing (MacLeod, Musich, Hawkins, Alsgaard, & Wicker, 2016). In addition, positive characteristics such as optimism, coping skills, positive thinking and emotion, social support, and engagement in physical activity have been associated with high resilience. Research has found that being optimistic is related to various indices of positive functioning such as positive affect, better coping, well-being, self-efficacy, and resilience (Sergeant & Mongrain, 2014; Choochom, 2014). Many research studies support the cultivation of optimism as individual skill that can improve positive functioning and well-being.

Social Support

Besides psychological immunity that the elderly can adopt as their psychological resources, social support is considered to be another resource contributing to the elderly's quality of life and well-being. Social support from interpersonal relationships such as family and friends has been extensively found to enhance health-related psychological outcomes, life satisfaction, and well-being (Lei, Xu, Nwaru, Long, & Wu, 2016; Li, Jiang, Li, & Zhang, 2017). Social support does not necessarily provide only physical assistance such as in caregiving, but it also includes psychological support that is essential for the elderly's psychological immunity. Consistent with the review literature, social support is likely to have an effect on the five domains of psychological immunity.

Enhancing Psychological Immunity and Well-Being

Psychological immunity is composed of resilience, mindfulness, coping, hope, and self-reliance. Several approaches and interventions have been designed to enhance each dimension of psychological immunity. Nonetheless, a review of literature shows a focus on mindfulness, optimism, and self-efficacy. First, a review of effects of mindfulness on psychological health by Keng et al. (2011) was synthesized from three areas of empirical studies: cross-sectional, correlational research on the relationships between mindfulness and indicators of psychological health; intervention research on effects of mindfulness-oriented interventions on psychological health; and laboratory-based, experimental research on immediate effects of mindfulness induction on emotional and behavioral functioning. The findings suggested that mindfulness

has an effect on various positive psychological factors such as increased well-being, reduced psychological symptoms and emotional reactivity, and improved behavioral regulation. Similarly, a brief mindfulness intervention was shown to increase emotional well-being and quality of life was found beneficial for elderly patients (Nyklicek, Dijksman, Lenders, Fonteljn, & Koolen, 2014). Mindfulness meditation showed to decrease a level of stress and anxiety among Thai elderly patients (Nithiuthai, Jinnge, & Choochom, 2017). According to mindfulness mediation training in Buddhism, the awareness exercises focus on creating an awareness of one's breath, bodily sensations, thoughts and emotions (Thera, 2014).

Second, interventions emphasizing optimism have been found to be effective in increasing resilience, quality of life, and psychological well-being (MacLeod et al., 2016; Seligman, Steen, Park, & Peterson, 2005; Sergeant & Mongrain, 2014). For example, Shapira and Mongrain (2010) assessed the effectiveness of an optimism exercise for a Canadian sample. Participants in the optimism intervention were asked to imagine and write about a positive future they will experience in current problems, whereas participants in the control group were instructed to write about early memories. The intervention involved writing journal for 7 consecutive nights. The results showed the optimism intervention had a moderate effect on subjective well-being. Participants in the optimism intervention also experienced a significantly higher level of happiness than those in the control group.

Similarly, Sergeant and Mongrain (2014) evaluated the effects of a three-week optimism intervention which involved training in two aspects of optimism. The first aspect focused on having positive beliefs to handle a difficult situation, and the second aspect focused on viewing one's goals as valuable and achievable. Participants in the optimism group experienced greater psychological well-being than those in the control group. In addition, Seligman (1998) proposed the ABCDE (Adversity, Belief, Consequence, Disputation, and Energization) model for building optimism. The model describes how to change negative beliefs that impact emotion and behavior into positive thinking. In fact, positive psychology interventions aimed at developing individual strengths and resources have shown positive effects (Sergeant & Mongrain, 2014).

Thirdly, self-efficacy is also a positive characteristic. The term self-efficacy or self-reliance stressed the trust and belief in one's own capabilities and spirit. People with high self-efficacy perceive themselves as successful and effective. Self-efficacy can be enhanced through 4 sources of information: 1) performance accomplishments; 2) vicarious experiences; 3) verbal persuasion; and 4) emotional arousal (Bandura, 1997). Several studies have revealed that training on self-efficacy in a specific domain had positive effects on that domain (Bandura, 1997; Fitzgeral & Schutte, 2010; Olson & McAuley, 2015). However, there were few studies using theorized sources of efficacy to develop global self-efficacy in older people.

In summary, the self-development model for enhancing psychological immunity is an integrated approach of mindfulness, optimism, and self-efficacy interventions. Positive characteristic components of psychological immunity are related and linked (Choochom, 2013). It is postulated that the integrated approach of mindfulness, optimism, and self-efficacy interventions (or psychological immunity intervention) would increase psychological immunity and well-being of the elderly. In addition, an interaction between the psychological immunity intervention and social support is postulated to increase psychological immunity and well-being. The findings would show whether the psychological immunity intervention would be an effective self-development intervention for enhancing psychological immunity and well-being among the elderly.

Methodology

Participants

Participants were Thai elderly recruited from senior clubs in the Bangkhunthian District, Bangkok. Participants were assigned to an intervention group if they met the two following criteria: (a) age between 60 and 80 years old; and (b) having been agreed to participate in 10 group sessions over 5 weeks in the senior club. Participants were excluded from the study if they had (a) manifested mental illness; or (b) a significant physical illness. No participant was excluded based on gender, ethnic orientation, cultural or religious background. A total of 24 elderly participants were included in the intervention group, and 24 elderly participants were included in the control group. The participants in the control group also had the same criteria for inclusion (except criterion b) and exclusion, and they were willing to be assessed in the same sequence as those in the intervention group (before the beginning of the intervention and at the end of the intervention).

Study Design

The study was a quasi-experiment, including pretest and posttest with a control group. Participation was on a voluntary basis. The design of the study consisted of a 2 x 2 factorial design with 24 participants in each condition of the intervention. There were 2 levels of social support (low and high), and 2 conditions of intervention (PI intervention group and no-intervention/control group). The dependent variables were psychological immunity and well-being.

Measures

Self-report inventories with a 5 rating scale ranging from strongly true (5) to strongly untrue (1) were administered to measure psychological immunity, well-being, and social support. Each type of variable measures is described.

Self-Immunity Scale. The short version of self-immunity scale (Choochom, 2013) consisting of 15 items was used to assess psychological immunity. The scale contained five subscales: 1) mindfulness (self-awareness in thinking, talking, and acting appropriately), 2) self-reliance (ability to deal effectively with activities and problems), 3) hope (ability to plan pathways to desired goals despite obstacles), 4) resilience (ability to adapt and bounce back from adverse events) and 5) coping (conscious efforts to manage the internal and external demands of situations successfully). A higher score in each domain indicated a higher level of psychological immunity. The range of item-total correlations on each domain of psychological immunity was between .73 and .79. The Cronbach's alpha reliability coefficient of all five domains was .78.

Social Support Scale. The social support scale, developed by the researcher, with 10 items was used to assess individuals' perceptions of information, appreciation, and emotion support from friends and family. A higher score indicated a higher level of perceived social support. The range of item-total correlations on the social support scale was between .67 and .80, and the Cronbach's alpha reliability coefficient was .75.

Psychological Well-Being Scale. The scale of psychological well-being was developed from the brief scale of psychological well-being (Diener & Biswas-Diener, 2008). This scale consisted of 10 items assessing individuals' positive functioning, relationships, self-esteem, purpose and meaning, and optimism. A higher score indicated a higher level psychological well-being. The range of item-total correlations on the social support scale was between .68 and .72, and the Cronbach's alpha reliability coefficient was .72.

Psychological Immunity (PI) Intervention and Procedure

The psychological immunity (PI) intervention was based on the integration of mindfulness, optimism, and self-efficacy approaches. The PI intervention consisted of 10 group sessions conducted over a five-week period and was administered at a senior club room located at a sports center in Bangkok, Thailand. Each session lasted for 120 minutes. The activities and techniques used in the PI intervention included short lectures, group discussions, visual media, modeling, vicarious learning, self-monitoring, and individual practices. All sessions were conducted by two researchers who served as facilitators.

The first session provided orientation, introduction of the self-development model, pretest and relaxation training. The second session involved social relationship building through dynamic activity and problem-solving. The third session covered positive self-monitoring and improved self-efficacy. The fourth session involved building resilience and stress management. The fifth session covered the relationships among adversity situations, thinking, emotions and behavior. The sixth session introduced methods of changing pessimistic beliefs to optimistic beliefs and practice. The seventh session covered Buddhist teachings and mindfulness practices. The eighth and ninth session involved mindfulness meditation and practices. Finally, the tenth session was a summary of the self-development model and posttest. Every session included a relaxation exercise and ended with a session summary. A more detailed description of the activities and techniques used in each session for the PI intervention is summarized in Table 1.

Measures of psychological immunity and social support were administrated to both groups at the start and at the end of the intervention. The intervention group received the PI intervention. Each session took 2 hours. After the completion of the intervention, all participants in both groups were assessed for psychological immunity and well-being. The control group did not attend any model activities, but they were assessed in the same sequence as the intervention group (before the beginning of the treatment and at the end).

Data Analysis

Preliminary analyses included descriptive statistics for demographic and baseline data, and correlation among variables. Independent samples t-tests and chi-square tests were employed to examine demographic/baseline characteristics differences between the two groups. The assumptions of homogeneity of regression slopes, linearity, and homogeneity of variance were tested before employing ANCOVA (Analysis of Covariance). ANCOVA and ANOVA (Analysis of Variance) were conducted to assess the effects of intervention and social support on psychological immunity and well-being. To measure the magnitude of the results, effect size was calculated with the use of partial eta-squared. Psychological immunity (pretest score) served as the covariate for all ANCOVA analyses.

Table 1

The 5-Weeks of Self-Development Model for Enhancing Psychological Immunity

Session	Activity	Approach
1. Introduction and pre-test	- Introduction of the facilitators and participants - Overview of the model - Relaxation training	Orientation Relaxation technique
2. Building social relationship and problem solving	- Introduction of group activity: Each participant seeks to find other participants having the similar issue - Each group with similar issue solves the problem - Each group shares and discusses its issues and solution on how to solve problems	Dynamic activity Resiliency Problem solving and social relationship Group discussion
3. Building self-efficacy	- Self-exploration and reflection about their own achievement, strength and positive things - The use of verbal persuasion to convince the elderly they are capable and valuable - Demonstration of the elderly's abilities such as singing, dancing, mediation	4 Sources of self-efficacy
4. Self-efficacy and stress management	- Overview of stress management - Sharing participants' experience about stress - Demonstration of the elderly who performs well in relaxation techniques	Self-efficacy: vicarious learning Stress management: Relaxation
5. Optimism, hope, and coping,	- Discussion: optimism - Sharing personal experience of positive thinking about adverse situations and storytelling of optimistic persons - Self-reflection: experience on the adverse situations - Covering beliefs about a situation and emotional reaction to the beliefs	The ABCDE model
6. Optimism and disputation of pessimistic beliefs	- Overview of the ABCDE model and methods of changing pessimistic beliefs to optimistic beliefs - Giving concrete examples of ABCDE model - Group discussion: Generating explanations of beliefs and reactions in positive ways from adverse situation	The ABCDE model Group discussion
7. Mindfulness	- Overview of benefits of mindfulness - Sharing experience on mindfulness practice - Instructions for mindfulness practice	Role model Observed learning Learning by doing
8. Mindfulness meditation	- Buddhist teachings and body scan - Teaching awareness of the breath, bodily sensations, thoughts, and emotions - Observing role model and practices: Mindful sitting, walking, standing, and lying down.	Role model Observed learning Learning by doing
9. Mindfulness meditation	- Discussion: Obstacles and difficulties practicing mindfulness meditation - Sitting meditation practice	Role model Observed learning Group discussion Learning by doing
10. Summary	- Discussion: Activities in the model - Summary of the model and post-test	Group Discussion

Ethics

This study was approved by the Ethics Committee of Srinakharinwirot University with the Certificate Number SWUEC/E-221/2560.

Results

The results of the demographic characteristics of the 48 elderly participants showed an average age of 65 years with a standard deviation of 3 years. Ages ranged between 60 and 79 years. The majority of participants were women and had completed primary education in both groups. As summarized in Table 2, the findings show that there were no significant differences in terms of age, gender, educational attainment, marital status, living arrangement, financial status, social support, and psychological immunity between the participants in the intervention group and the control group.

Table 2

Demographic Characteristics of the Intervention and Control Groups: Means (Standard Deviation) or Numbers

Demographic Characteristics	Intervention group	Control group	t or χ^2 value
Age	66.29 (6.08)	63.37 (4.66)	t = 1.86
Gender			
• Male	3	5	χ^2 = .66
• Female	21	19	
Educational Attainment			
• Primary education	17	11	
• Secondary education	5	6	χ^2 = 6.37
• Higher education	2	7	
Marital status			
• Single	5	6	
• Divorce	0	2	χ^2= 3.25
• Widow	6	5	
• Marriage	13	11	
Living Arrangement			
• Alone	0	3	
• Husband/Wife/Children	17	15	χ^2 = 8.12
• Relatives	6	3	
• Friend	1	3	
Financial Status			
• Savings	11	8	
• Enough	7	8	χ^2 = 1.54
• Not enough	7	8	
Social support	41.87 (7.35)	39.70 (6.34)	t = 1.09
• Low	11	11	
• High	13	13	
Psychological Immunity (Pretest)	56.79 (8.13)	60.58 (9.94)	t = -1.44

The results from preliminarily analysis (N = 48) indicated that pre-intervention psychological immunity was positively correlated with social support ($r = .53$, $p < .01$) and post-intervention psychological immunity ($r = .50$, $p < .01$). A correlation between pre-intervention psychological immunity and psychological well-being ($r = .08$) was found to be non-significant.

Effects of the intervention on psychological immunity and well-being

Shown in Tables 3 and 4, the results reveal significant differences between the intervention group and control group with respect to psychological immunity ($F_{(1, 43)} = 15.04$, $p < .01$, partial eta-squared = .26) and well-being ($F_{(1, 44)} = 23.33$, $p < .01$, partial eta-squared = .35). Participants in the PI intervention group scored significantly higher on psychological immunity ($M = 64.82$) and psychological well-being ($M = 48.52$) than the participants in the control group (M for psychological immunity = 57.21 and M for psychological well-being = 43.75).

Table 3

Analysis of Covariance of Psychological Immunity and Analysis of Variance of Psychological Well-Being

Dependent Variables	*df*	Mean Square	F	Partial Eta Squared
Psychological Immunity				
• Covariate	1,43	690.15	16.09**	.27
• Group	1,43	645.10	15.04*	.26
• Social Support	1,43	61.12	1.43	.03
• Group X Support	1,43	30.61	.71	.01
Resilience				
• Covariate	1,43	9.65	3.52	.07
• Group	1,43	27.69	10.11**	.19
• Social Support	1,43	.00	.00	.00
• Group X Support	1,43	.36	.13	.00
Mindfulness				
• Covariate	1,43	25.52	4.17*	.08
• Group	1,43	125.31	20.49**	.32
• Social Support	1,43	.00	.00	.00
• Group X Support	1,43	2.43	.39	.00
Self-reliance				
• Covariate	1,43	18.88	5.84*	.12
• Group	1,43	1.30	.41	.01
• Social Support	1,43	.27	.08	.00
• Group X Support	1,43	.00	.00	.00
Hope				
• Covariate	1,43	67.65	16.10**	.27
• Group	1,43	53.34	12.67**	.23
• Social Support	1,43	4.88	1.16	.03
• Group X Support	1,43	1.57	.37	.01
Coping				
• Covariate	1,43	22.51	2.43	.05
• Group	1,43	2.15	.23	.00
• Social Support	1,43	20.47	2.20	.05
• Group X Support	1,43	31.72	3.42	.07
Psychological Well-being				
• Group	1,44	277.55	23.33**	.35
• Social Support	1,44	4.26	.35	.00
• Group X Support	1,44	3.68	.30	.00

****** $p < .01$, ***** $p < .05$

Table 4

Adjusted Means of Psychological Immunity and Means of Psychological Well-Being for the Two Groups:

Dependent Variables	Intervention Group Adjusted Mean	Control Group Adjusted Mean
Psychological Immunity	64.82	57.21
• Resilience	14.10	12.52
• Mindfulness	11.36	8.01
• Self-reliance	13.01	12.67
• Hope	13.94	11.75
• Coping	12.36	11.92
Psychological Well-Being	Mean = 48.52 SD = 1.92	Mean = 43.75 SD = 4.42

The results also showed that the participants receiving the PI intervention had significantly greater psychological immunity in the domains of resilience (M = 14.10), mindfulness (M = 11.36), and hope (M = 13.94) than did the control group (M for resilience = 12.52, M for mindfulness = 8.09, and M for hope =11.75). The partial eta-squared values for resilience, mindfulness, and hope were .19, .32, and .23 respectively. There were no significant interaction effects of social support and PI intervention on psychological immunity and well-being. Similarly, there was no significant main effect of social support on psychological immunity and well-being.

Discussion

The aim of this study was to assess the effectiveness of a self-development intervention on psychological immunity and well-being in the elderly. The results found that the participants in the intervention group showed significantly greater psychological immunity and well-being than those in the control group. The findings also suggest that the multiple-dimensional intervention integrating among mindfulness, optimism, and self-efficacy showed an improved level of psychological immunity and well-being. Specifically, the intervention had significant effects on the components of resilience, mindfulness and hope of psychological immunity. The results are consistent with the findings of previous studies showing interventions emphasizing optimism and mindfulness can improve resilience and wellbeing (Keng et al., 2011; MacLeod et al., 2016). Furthermore, hope is a partial concept of optimism process (Seligman, 1998). The current PI intervention integrated an optimism approach which included hope strategies into activities. Consequently, participants in the PI intervention showed an improved level of hope.

With respect to self-reliance and coping aspects of psychological immunity, differential effects between the two groups were not found. It is possible that self-reliance and coping require a longer period of the intervention. Another possible explanation for the non-significant results is that the intervention is not sensitive enough to detect the differences. It may be possible that the situations in the intervention were not based on real-life situations and group-based solving.

More importantly, there is no significant main effect of social support orientation on psychological immunity and well-being. The findings are not congruent with correlational studies in which social support was strongly associated with quality of life and well-being in

old age (Sun et al., 2017). It is possible that the variations between the low social support group and the high social support group in this study were not significant due to the fact that mean scores of social support were used as a cutoff criterion. Another possibility is that social support might be only a significant factor for older people with health problems as found in previous studies (Nyklicek et al., 2014) but not for healthy elderly as the participants as found in this study. It should be noted that social support in this study was not treated in the intervention. Rather, social support was only postulated as a moderating variable between intervention and psychological immunity.

Due to insignificant interaction of social support and the intervention on psychological immunity and well-being, it could be concluded that the present psychological immunity intervention which increases psychological immunity and well-being is a self-development intervention which is appropriate for the elderly in Thailand.

Practical Implications

This study has several implications. First, the elderly and senior clubs can benefit from adopting this intervention model of psychological immunity and use it to improve psychological immunity and well-being. Moreover, the results also support the effectiveness of integrating between Eastern and Western approaches, such as the Buddhist teachings and mindfulness practices in accordance with positive psychology (e.g. the ABCDE model). Specifically, the elderly should have mindfulness and face an adverse situation with positive thinking such as perceiving a situation as an opportunity to learn something new or a situation that they have an ability to manage and overcome. However, one should be aware that the intervention model is a group-based intervention. Furthermore, methods within the psychological immunity intervention such as mindfulness meditation and relaxation exercises are inherent in the activities of several senior clubs. Thus, the intervention can be a useful addition to the existing program at senior clubs by including the integration of activities and techniques presented in the intervention of this research.

Limitations and Future Research

This study has several limitations that should be considered in future research. The intervention of this model was limited to a 5-weeks program and was studied with only 48 volunteer participants using a quasi-experimental design. Future research should include a larger sample with a random assignment to a treatment and control group in order to increase the internal validity of the study. Another limitation is the low number of male participants, which may limit the generalizability of the results to the male elderly. Moreover, future studies should extend the duration of the study and add follow up assessment at 1, 2, or 3 months after the end of the intervention to examine the stability of the model effects. Another limitation of this study is that it used only quantitative data to evaluate the effects of the intervention. Future research might include qualitative data in the study to confirm the results.

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References

Bandura, A. (1997). *Self-efficacy: The exercise of control*. NY: W.H. Freeman.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Theoretical foundations and evidences for its salutary effects. *Psychological Inquiry, 18*(4), 211-217. doi: 10.1080/10478400 70159 8298

Choochom, O. (2013). Kānphatthanā bǣp wat phūmkhumkan ton [The development of a self-immunity scale]. *Warasan Chittawitthaya Mahawitthayalai Kasem Bandit, 3*(3), 10-20.

Choochom, O. (2014). Antecedents and consequences of psychological immunity. *Humanities and Social Sciences Review, 3*(3), 191-197.

Diener, E., & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of Psychological wealth*. Malden, MA: Blackwell.

Felten, B., & Hall, J. (2001). Conceptualizing resilience in women older than 85: Overcoming adversity from illness of loss. *Journal of Gerontological Nursing, 27*(1), 46-54.

Fitzgeral, S., & Schutte, N. S. (2010). Increasing transformational leadership through enhancing self-efficacy. *Journal of Management Development, 29*(5), 495-505. doi: 10.1108/02621 711011039240

Foundation of Thai Gerontology Research and Development Institute. (2016). Sathānakān phū sūngʻāyu Thai Phọ̄.Sọ̄. sọ̄ngphanhārọ̄ihāsipkāo [*Situation of the Thai Elderly, 2016*]. Bangkok: Foundation of Thai Gerontology Research and Development Institute.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*(2), 144–156. doi: 10.1093/clipsy.bpg 016

Kansuntisukmongkol, K. (2017). Philosophy of sufficiency economy for community-based adaptation to climate change: Lessons learned from Thai case studies. *Kasetsart Journal of Social Sciences, 38*(1), 56-61. doi: 10.1016/j.kjss.2016.03.002

Keng, S., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review,* 31, 1041-1056. doi: 10.1016/ j.cpr.2011.04.006

Larzarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Lei, P., Xu, L., Nwaru, B. I., Long, Q., & Wu, Z. (2016). Social networks and health-related quality of life among Chinese old adults in urban areas: Results from 4th National Household Health Survey. *Public Health, 131*, 27–39. doi: 10.1016/j.puhe.2015.10.009

Li, C., Jiang, S., Li, N., & Zhang, Q. (2017). Influence of social participation on life satisfaction and depression among Chinese elderly: Social support as mediator. *Journal of Community Psychology, 46*(3), 345-355. doi: 10.1002/jcop.21944

MacLeod, S., Musich, S., Hawkins, K., Alsgaard, K., & Wicker, E. R. (2016). The impact of resilience among older adults. *Geriatric Nursing, 37*(4), 266-272. doi: 10.1016/j.geri nurse.2016.02.014

Nithiuthai, S., Jinnge, P., & Choochom, O. (2017). Kān sangkhrọ rūpbǣp kānčhatkān khwāmkhrīat nai phāwa wikrit chīwit khọ̄ng phū sūngʻāyu [A synthesis of stress management of life crisis for older adults]. *Journal of Behavioral Science for Development, 9*(2), 73-92. doi: 10.144 56/jbsd.2017.20

National Elderly Committee. (2009). *The 2nd National Elderly Plan (2002-2021).* Bangkok: Ministry of Social Development and Human Security.

Nyklicek, I., Dijksman, S. C., Lenders, P. J., Fonteljn, W. A., & Koolen, J. J. (2014). A brief mindfulness based intervention for increase in emotional well-being and quality of life in percutaneous coronary intervention (PCI) patients: The mindful Heart randomized controlled trial. *Journal of Behavioral Medicine, 37*(1), 135-144. doi: 10.1007/s10865-012-9475-4

Office of National Economic and Social Development Board. (2017). *The twelfth economic and social development plan (2017-2021).* Bangkok: Office of National Economic and Social Development Board.

Olson, E. A., & McAuley, E. (2015). Impact of a brief intervention on self-regulation, self-efficacy and physical activity in older adults with type 2 diabetes. *Journal of Behavioral Medicine, 38*(6), 886-898. doi: 10.1007/s10865-015-9660-3

Rachman, S. J. (2016). Invited essay: Cognitive influences on the psychological immune system. *Journal of Behavior Therapy and Experimental Psychiatry, 53,* 2-8. doi: 10.1016/j.jbtep. 2016.03.015

Seligman, M. E. P. (1998). *Learned optimism.* NY: Free Press.

Seligman, M. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress. *American Psychologist, 60*(5), 410-421. doi: 10.1037/0003-066X.60.5.410

Sergeant, S., & Mongrain, M. (2014). An online optimism intervention reduces depression in pessimistic individuals. *Journal of Consulting and Clinical Psychology, 82*(2), 263-274. doi: 10.1037/a0035536

Shapira, L. B., & Mongrain, M. (2010). The benefits of self-compassion and optimism exercises for individuals vulnerable to depression. *The Journal of Positive Psychology, 5*(5), 377-389. doi: 10.1080/17439760.2010.516763

Sun, Y., Zhang, D., Yang, Y., Wu, M., Xie, H., Zhang, J., … Su, Y. (2017). Social support moderates the effects of self-esteem and depression on quality of life among Chinese rural elderly in nursing homes. *Archives of Psychiatric Nursing, 31*(2), 197-204. doi: 10.1016/ j.apnu.2016.09.015

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., …Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology, 60*(4), 570-585. doi: 10.1037/0022-3514.60.4.570

Thera, N. (2014). *The heart of Buddhist meditation: The Buddha's way of mindfulness*. San Francisco, CA: Weiser Books.