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Development and Effectiveness of a Community-based Intervention Program for Elderly Women in Malaysia

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The present study, using a health empowerment approach, developed a community-based intervention program for elderly women, and evaluated its effectiveness. The program covered five areas—physical health, cognitive functioning, affect and control, social functioning, and religion—and ran for 10 weeks, 90 minutes per week. Using an experimental design, a group of 18 elderly women were placed in the intervention group while another 18 served as controls (Group). Four well-being measures (memory and attention, religiosity, social engagement, and anxiety and depression) were used to assess the effectiveness of the program, before and after the program (Time). Qualitative interview data from participants and family members were also gathered to provide additional input on the effectiveness of the program. Results showed significant main effects of Time for religiosity and memory and attention. More importantly, results indicated significant Group x Time interactions for religiosity as well as memory and attention, with the intervention group reporting more changes in their mean scores over time compared to the control group. These quantitative findings were generally supported by the qualitative interviews. These findings are deemed beneficial in building women's personal and social resources.

Keywords: community-based intervention, development, effectiveness, well-being

Similar to other developing countries, Malaysians too are increasingly living longer. The number of elderly or senior citizens, i.e., those 60 years and above is rapidly increasing. The country is likely to reach an ageing nation status, where the elderly will comprise of at least 15% of the population by 2035 (Ganesan, 2010). But, like most developing countries, Malaysia lacks policies to address the needs of the elderly such as income, health care and housing (Global study, 2013).

The country's social institutions have been slow to respond to these changes in demography, thus the present study aimed to empower elderly women who are functionally independent to continue being engaged within the community. Promoting this behaviour would not only extend their life span, but would also allow the women to experience better quality and more meaningful life over the years (Allender & Spradly, 2001). To do so, we developed and carried out a community-based empowerment intervention program focusing on developing their psycho-social skills, and evaluated the effectiveness of the program. Such a program is sorely needed in the country due to a lack of available intervention programs that go beyond physical health needs. In the next several sections, we provide relevant background to the study. We first present studies of intervention programs on the elderly, followed by a rationale for the development of an intervention program that combines multiple components. Finally, we present a health empowerment model that was used to guide the development of the study's intervention program.

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Elderly in Malaysia

In Malaysia, the elderly are classified into two groups; the young-old (60-74 years) and the old-old (75 years and above). But, due to individual differences, a more useful way to consider the elderly would be in terms of their functioning in society rather than chronological age. Using this criterion, Ettinger and Beck (1982) have classified the elderly into three groups. The first, the functionally-independent elderly consists of those who are healthy, active and live in the community unassisted, and they make up about 70% of the elderly population. The second group, the frail elderly are those who have lost some of their independence, live in the community but need the companionship of others, and make up about 20% of the elderly population. The final group, the functionally-dependent elderly consists of those who are unable to live independently, and they are either home-bound (5%) or institutionalized (5%).

In Malaysia, life expectancy at birth for 2011 shows that women outlived men by 5.1 years-72.0 years for males and 77.1 for females. In addition, for those who reached the age of 65 years in 2011, males can expect to live for another 13.9 years while females 16.2 years (Department of Statistics, 2012). Because of this feminization of aging, the study focuses only on elderly women.

Intervention Studies on the Elderly

A number of intervention studies have been developed for the elderly that have addressed healthy aging (e.g., Li, 2004; Tambag & Oz, 2013; WHO, 2002). In the West, these intervention programs usually target the elderly's behavioural health, cognitive functioning, coping styles, loneliness, depression, fall prevention, and social engagement (e.g., Caprara et al., 2013; de Vlaming et al., 2013; Li, 2004; Rosen & Rosen, 1982; Ruikes et al., 2012).

Tambag and Oz (2013), for example, evaluated a psychoeducation intervention program administered to elderly in two nursing homes. The program had eight sessions conducted twice weekly, each lasting for 60-90 minutes. The activities included getting to know each other, specifying group rules, taking responsibility for health, nutrition and exercise, interpersonal communication and benefiting from social assistance, self-realization, stress management, and life satisfaction. After the completion of the program, a set of questionnaires was administered (i.e., the life satisfaction index, and the health promotion lifestyle profile). Results indicated that all mean scores showed significant increases.

Beauchamp, Vulerie, Schmitz, Kemper, and Hall (2008) assessed the effectiveness of a program known as the Program of All-Inclusive Care for the Elderly or PACE, intended to prolong the independence and enhance the quality of life of the elderly, using techniques like restorative therapies, personal care and supportive services, nutritional counselling, recreational therapy, and transportation. Effectiveness of the program was measured by a comparison survey between PACE enrolees and a comparable group of elderly. The results showed that PACE participants reported better health status and fewer depressive symptoms, with no change in the levels of functioning.

Li (2004) assessed the effectiveness of a health promotion program for low-income elderly in Taipei, Taiwan. This 8-months program included direct personal visits by trained staffs as well as graduate nursing students. Eighty-nine low-income elderly (aged 64-96)

completed pre-test structured surveys, while 60 participants (aged 68-96) completed post-test surveys. Post-test scores indicated improved nutritional status and chore management. Although no significant difference in psychosocial status was found between pre- and post-test scores, Li showed that the health promotion services were effective in improving health status and decreasing perceived needs for services among low-income elderly in Taipei.

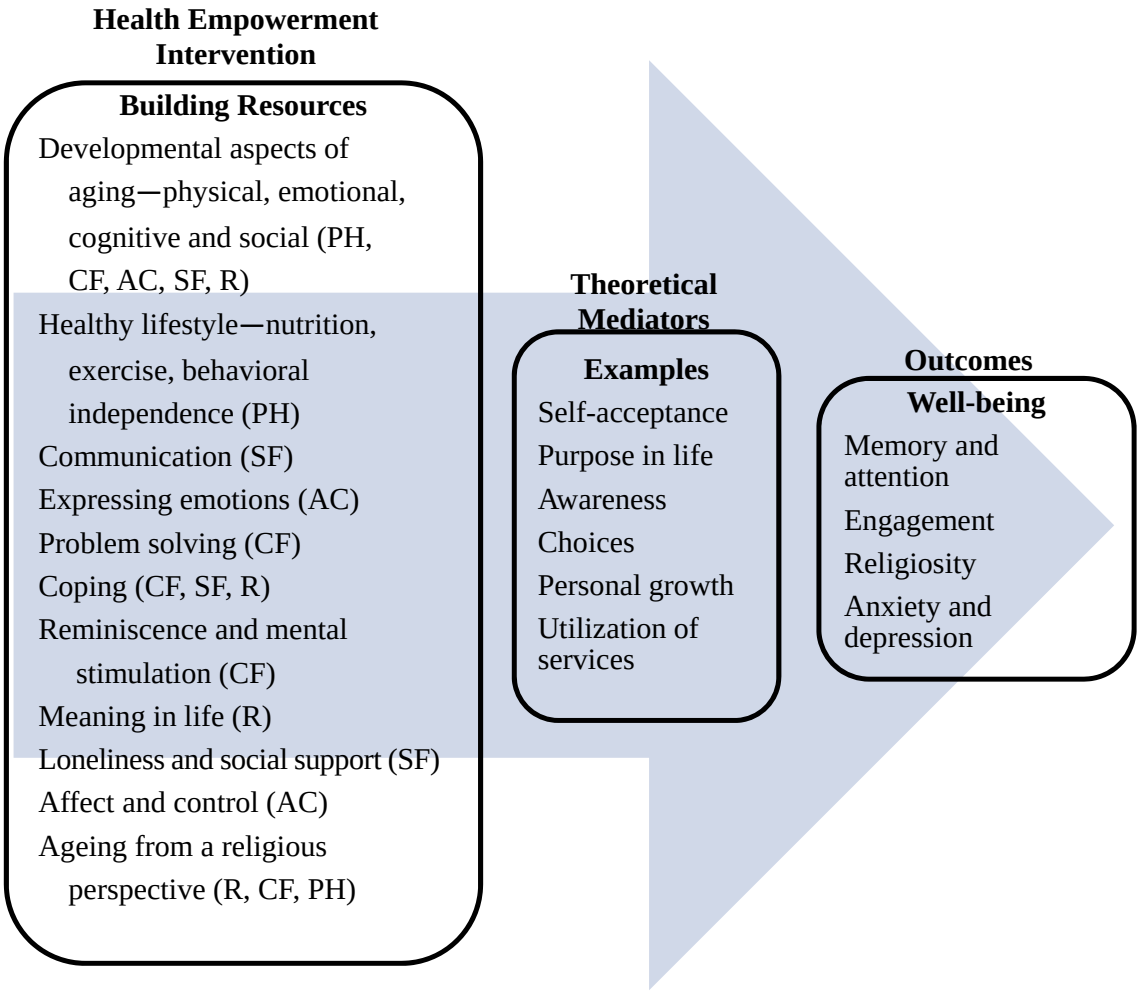
A systematic review on the effectiveness of health-promotion interventions targeting social isolation and loneliness among older people carried out between 1970 and 2002 showed that 9 of the 10 effective interventions were group activities with an educational or support input. The results suggest that educational and social activity group interventions that target specific groups can alleviate social isolation and loneliness among older people (Cattan, White, Bond, & Learmouth, 2005). In sum, these programs aimed to provide comprehensive services for the elderly in managing their mental health, physical, and psychological well-being, as well as improving their independence to remain engaged in society. However, these studies were mostly carried out in the West.

In Malaysia, while there have been several intervention studies carried out with the elderly, they tend to be narrow and selective in their assessments of well-being (e.g., Abdul Aziz, Nik Husain, & Wan Mohammad, 2013; Azizan, Justine, & Kuan, 2013; Shahar et al., 2013). Most of these studies focused on physical health such as physical ability (Abdul Aziz et al., 2013), exercise adherence and efficacy (Azizan et al., 2013), muscle strength and body composition (Shahar et al., 2013), as well as functional capacity (Thiyagarajan, 2012). The targeted elderly came from various backgrounds such as rural (Abdul Aziz et al., 2013) and urban areas (Azizan et al., 2013), residential care (Thiyagarajan, 2012), and also with different disabilities (Sazlina, Browning, & Yassin, 2012; Shahar et al., 2013). Therefore, most of the programs tend to focus on physical functioning, like exercise to improve the physical ability of the elderly. None, however, took into account the psychosocial needs of the elderly. Thus, to fill this gap, the present study developed a community intervention program based on the health-empowerment model of Shearer (2009) that is deemed to be more comprehensive because the intervention goes beyond physical health to include also older people's psychological and social aspects.

Development of the Intervention Program

Figure 1 shows the conceptual framework used in the present study that is based on the health empowerment intervention framework of Shearer (2009). The framework emphasizes on the elderly to engage their inner resources or build upon their capacity in terms of understanding, developing and changing themselves. The first part of the framework (left-hand side of figure) consists of Building Resources. In the present study, under this particular heading we provided a number of strategies that could foster the awareness of, and access to personal and social contextual resources for the elderly women, including knowledge on the developmental aspects of aging, healthy lifestyle, communication exercises, expression emotion, problem solving, coping, reminiscing, finding meaning in life, loneliness, affect and control, and ageing from a religious perspective. Each of these topics is chosen to address the psycho-social components of physical health, cognitive functioning, affect and control, social functioning, and religiosity—components that have been shown to be important for the elderly (e.g., Allen, 2008; Caprara et al., 2013; Nicholls, 2006). Caprara et al. (2013), for example, emphasized that active aging is a multidisciplinary concept and successful aging must include psycho-social factors such as cognitive and mental functioning, positive mood,

sense of control, active coping styles, and social participation and engagement. Nicholls (2006), on the other hand, stressed on the importance of support, social contact, participation, learning new skills, and sustaining a sense of purpose as essential activities to promote the elderly's well-being. Religion has also been shown to more important for older than younger people (Davie, 1990; Voas & Crockett, 2005). Therefore, there is sufficient evidence in the research literature to support the components chosen.



Notations. Physical Health (PH), Cognitive Functioning (CF), Affect and Control (AC), Social Functioning (SF), Religion (R).

Figure 1. Framework of the Program Based on the Health Empowerment Intervention Framework of Shearer (2009).

We carried out a needs analysis in November, 2014 to assess the needs of the aging population living in the same community where the intervention was to be held. We interviewed 9 Malay elderly women, aged 59 to 74 years, for 20-30 minutes after one of their religious classes at the mosque. The results indicated the kinds of dwelling they resided in, with whom they co-reside, their social network and relations, daily activities, and suggestions as to the kinds of activities that they would like to have and be involved in within the community. These findings were used to assist the development of the empowerment intervention program.

The right-hand side of Figure 1 shows that well-being is the intended outcome of the intervention, and in this study it is assessed by four measures—memory and attention, social engagement, religiosity as well as anxiety and depression. Theoretical mediators (middle part of figure) are internal to people and some possible ones are listed. However, these internal mediators are not measured, only the well-being outcomes.

We examined the effectiveness of the intervention program by comparing a group of elderly women who went through the program with a control group who did not. To be more specific, we hypothesized that elderly women who completed the intervention program would report better scores on the well-being measures compared to those who did not go through the program.

Method

Participants

Participants were Malay Muslim women recruited from the community. Several mosque committee members provided about 40 names of elderly women living within the community, aged 55 years and above. The 55 year-old cut-off was used because of the difficulty in getting enough number of elderly women to participate. Another criterion used to select potential participants was that the women must still be reasonably healthy, active and independent; i.e., the functionally-independent elderly, who live in the community unassisted (Ettinger & Beck, 1982).

Telephone calls were then made to the women informing them that the mosque would be organizing a series of talks and activities for the elderly and if they were interested, to come for a briefing to obtain more information.

Nineteen women initially responded and showed interest in the program, and they formed the intervention group. Another group of 19 elderly women who shared similar socio-demographic characteristics to the women in the intervention group were selected from the earlier list and they served as controls. However, over time, only 18 women remained in each group. Both groups of women were physically healthy as assessed by two items measuring nutrition and exercise (see Table 3).

Study Design and Procedure

The study used a non-randomized experimental design, with women in the intervention group undergoing 10-weeks of intervention, every Saturday morning for 90 minutes. Except for the first meeting to get to know the participants, the control group did not

go through any intervention. Both groups were tested twice on their well-being measures; before the start of the intervention program and after the program was completed at 10 weeks.

Each of the sessions began with some light physical exercises like stretching or deep breathing followed by a half-hour talk on a predetermined topic by a facilitator based on the five identified domains. The rest of the time would be for discussions, activities, and sharing between the facilitator and participants.

Details on the intervention program is presented in Table 1. The table shows the topics and the main points discussed in the weekly sessions. The table also shows the relation of the topics to the main components of the program.

Table 1

Outline of the 10-Weeks Intervention Program

	Session	Content and Activities
Introduction and Rapport-building	1	Introduction and rapport-building • Introduction of the research team to participants. • Introduction of the participants • Breaking the ice and getting to know one another. • Introduction and overview of the program • Discussion between the research team and participants to finalize the day and time of the program • Agreement to attend, consent to participate, expectations from participants, etc. were discussed
Developmental Aspects of Aging (PH, CF, AC, SF, R)	2	Light physical exercises Developmental effects of aging (session was led by a developmental psychologist) • Overview of developmental process across the lifespan: Physical, emotional, cognitive and social • Biological and environmental factors and their impact on aging and general quality of life of the elderly • Techniques and ways to slow down the ageing process (exercise, eating properly, keeping oneself stimulated and occupied, keeping in touch with family member and friends, etc.) • Socio-emotional aspects of growth was covered to end the educational session Sharing moments by the participant

Table 1

Outline of the 10-Weeks Intervention Program (Continued)

	Session	Content and Activities

Communication (SF)	3	Deep breathing exercises
		Effective communication
		• Definition of communication—including verbal and nonverbal communication, the message, the medium, the noise, the context, and feedbacks
		• Problems/barriers in communication
		  • Group activity: Participants were divided into small group, and through discussions, identified their problems in communication (e.g., lack of clarity, misunderstanding or miscommunication, inter-generational gap, etc.)
		• Resolving problems in communication.
		  • This part focused on being an attentive listener, giving time to communicate, and understanding the personality of both parties—communicator and receiver.
		Sharing session

Regulation and Expression of Emotions (AC)	4	Light physical exercises and breathing exercises Expressions of emotions • Group activity: Learning to use one's senses • Discussion on how to manage feelings of sadness: Acknowledging the feeling, admitting one's true feeling and ventilating sadness in a healthy manner • Understanding feelings of tension and ways of managing them • Individual differences in emotion regulation and expression Sharing session
Aging from an Islamic Perspective (R, CF, PH)	5	Light physical exercises Aging from an Islamic perspective • Brain exercise (memorization of the verses of the Quran) • Discussion on words and processes related with aging found in the Quran • Foods/diet that can help with memory and aging • Prayers that can be recited to help with the aging process Sharing session

Table 1

Outline of the 10-Weeks Intervention Program (Continued)

	Session	Content and Activities
Half-day Excursion (CF, SF)	6	Excursion • This serves as a reward for the participants for their consistent attendance, support and engagement in the program • The excursion also serves to provide mental stimulation for the participants, besides giving them the opportunity to participate and engage with one another
Finding Meaning in Life (R)	7	Light physical exercises • General introduction on the meaning in life • Importance of learning from the challenges faced in life • Meaning of life is governed by three components: Life is a test; we are vicegerents and servants of Allah; and Piety. Sharing session
Information on Healthy Eating and Nutrition (PH, CF)	8	Light physical exercises and deep breathing exercises • The session was conducted via discussion and sharing (two way communication) • Started with a discussion on food intake and current trends • Influences on the choice of food—flavors, family, psychological and emotional reasons, culture • Healthy eating, brain processes, and a healthy body • Discussion on Alzheimer's disease
Loneliness, Depression and Anxiety among the Elderly (SF, AC, CF)	9	Light physical exercises • Visualization exercises to trigger memories of past, present and future events among the participants • Definition of loneliness and how to overcome loneliness • Definition and symptoms of depression, techniques to manage depressive feelings and episodes, and when to seek professional help • Definition and symptoms of anxiety and how to overcome anxiety • Techniques to manage stress and worries Sharing session

Table 1

Outline of the 10-Weeks Intervention Program (Continued)

	Session	Content and Activities
Coping and Social Support (CF, SF, R)	10	Light physical exercise • Sharing of personal experiences in overcoming challenges • Importance of social support and being active • Use of humor End of 10-weeks program • Test administration • Face-to-face interview with participants to gather verbal feedback on program • Summary of program from the research team and handing out tokens of appreciation to all participants

Qualitative data were obtained from the women and family members via face-to-face or as phone interviews, depending on their availability after the last session of the program. The questions posed to the women included their opinion of the program and how it could be further improved. Family members were asked if they had observed any changes in the participant throughout the ten sessions of the program, and if they had any suggestions or comments on the program.

Measures

Table 2 presents the well-being measures used, together with their Cronbach's alpha values. As can be seen, the alpha values, ranging from .73 to 84, were satisfactory.

Table 2

Measures of Well-being

Measures	
1. Memory and Attention	Assessed via scores on 4 items developed for the study. Examples of items are "I feel I have more problems with memory than other people of my age," and "I have difficulty remembering day-to-day things." Items were measured using a 5-point Likert response format (1 = "Strongly disagree" to 5 = "Strongly agree"). The items were reverse scored with higher scores indicating better memory and attention. Cronbach's alpha for this scale was .81.

Table 2

Measures of Well-being (Continued)

	Measures	
2.	Memory and Attention	Assessed via scores on 4 items developed for the study. Examples of items are "I feel I have more problems with memory than other people of my age," and "I have difficulty remembering day-to-day things." Items were measured using a 5-point Likert response format (1 = "Strongly disagree" to 5 = "Strongly agree"). The items were reverse scored with higher scores indicating better memory and attention. Cronbach's alpha for this scale was .81.
3.	Religiosity	Assessed via 3 items developed for the study. Examples of item are "I find comfort in my religion" and "Religion makes my life more meaningful." Items were measured using a 5-point Likert response format (1 = "Strongly disagree" to 5 = "Strongly agree"), with higher scores indicating higher religiosity. The Cronbach's alpha for scale was .77.
4.	Social Engagement	The measure of social engagement was assessed via 4 items developed for the study. Examples of items are "I enjoy my daily activities" and "I play a useful part in my family and community." Items were measured using a 5-point Likert response format (1 = "Strongly disagree" to 5 = "Strongly agree"), with higher scores indicating higher social engagement. The Cronbach's alpha for scale was .84.
5.	Anxiety and Depression:	This was assessed by 6 items adapted from past studies. Examples of items include "I feel that I am constantly under strain," and "I feel that my life is empty." Items were measured using a 5-point Likert response format (1 = "Strongly disagree" to 5 = "Strongly agree"), with higher scores indicating higher anxiety and depression. The Cronbach's alpha for scale was .73.

Informed Consent and Ethics

Approval to carry out the study was obtained from the Ethics Committee of the Department of Psychology. All participants who agreed to participate signed an informed consent form prior to the study. They were assured of their rights to privacy and anonymity, protection from harm, and sensitivity. Participants were also informed of their right to withdraw at any time.

During the weekly sessions, two research assistants were present to aid participants. Contact details of participants' spouses, children, or friend were available to the research team in case of any untoward events.

The venue for the weekly sessions, in a secluded section of the mosque, was chosen in consultation with the participants to ensure that they were comfortable with the choice. The mosque was chosen as the intervention site taking into consideration the local context, where the mosque is not only a place of worship, but also a place where elderly people in the community tend to gather and be engaged with their friends.

Data Analysis

A2 x 2 mixed factorial analysis was used to test the effectiveness of the intervention program, with Group as the between-subjects factor (intervention group and control group) and Time as the within-subjects factor (before and after the 10-week intervention).

Quantitative Analysis

The final number of elderly women undergoing the intervention was 18. The average age was 64.17 years (SD = 5.88), with a range between 55 and 74 years. The control group of 18 elderly women were matched as closely as possible to the intervention group on the socio-demographic variables of age, education, marital status and living arrangements. Results of the independent samples t-tests, carried out before the intervention, indicated that there were no difference in the two groups based on their age (t = .96, p > .05), highest education level attained (t =.33, p > .05), marital status ($\chi^2 = 2.86, p > .05$) and living arrangement ($\chi^2 = 6.90, p > .05$). Table 3 presents these demographics.

Table 3

Demographic Characteristics of the Two Groups of Elderly Women before Intervention

	Intervention group (n = 18)	Control group (n = 18)	
Age			
• Mean *(SD)*	64.17 (5.88)	62.28 (5.91)	t = .96, ns
Highest level of education			
• Mean *(SD)*	3.06 (1.55)	2.89 (1.49)	t = .33, ns
Marital status			
• Married	8	13	$\chi^2 = 2.86$, ns
• Single/widowed/divorced	10	5	

Table 3

Demographic Characteristics of the Two Groups of Elderly Women before Intervention (Continued)

	Intervention group (n = 18)	Control group (n = 18)	
Number of children			
• Range	0-6	0-8	
• Mean *(SD)*	3.56 (1.55)	2.89 (1.49)	
Living arrangement			
• Self	2	2	$\chi^2 = 6.90$, ns
• Husband only	3	10	
• Children only	9	3	
• Husband and children	4	3	
Physical Health			
• Nutrition (My daily meals are balanced)	3.94 (SD = 0.73)	4.44 (SD = 0.86)	t = 1.89, ns
• Exercise (I exercise regularly)	3.50 (SD = 1.10)	3.83 (SD = 0.92)	t = .99, ns

Effect of the Intervention Program on Outcomes

Table 4 presents the means and standard deviations of the well-being measures over time for the two groups.

Table 4

Means and Standard Deviations of the Well-being Measures before (Time 1) and After Intervention (Time 2) for the Two Groups

Measures	Time 1				Time 2					
	Intervention Group (n = 18)		Control Group (n = 18)		Intervention Group (n = 18)		Control Group (n = 18)			
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	d_C	d_I
Memory & Attention (α = .81)	3.137	3.07	3.527	2.42	3.622	2.85	3.555	2.18	0.028	0.485
Religiosity (α = .77)	2.517	.78	2.630	.21	2.930	.86	2.810	.92	0.180	0.413
Social Engagement (α = .84)	3.767	1.50	3.677	1.44	4.017	3.09	3.750	2.14	0.073	0.250
Anxiety & Depression (α = .73)	2.240	3.27	2.110	3.45	2.226	2.75	2.035	2.70	-0.075	-0.014

Note. d_C and d_I are the difference in the means of the control and intervention groups at the two times, respectively.

For each of the four measures—memory and attention, religiosity, social engagement and anxiety and depression—a 2 x 2 mixed factorial analysis was carried out to test the effectiveness of the intervention program.

Significant main effects of time were found for memory and attention (p=.013) as well as religiosity (p = .001) before and after the intervention. In both instances, higher mean scores were reported after the intervention.

Table 5

Results of the Mixed Factorial Analyses

Measures	*df*	*F*	*p*	η_p^2
Memory & Attention				
• Group	1, 34	.65	.427	.019
• Time	1.00, 34.00$^+$	6.88	.013	.168
• Group x Time	1.00, 34.00$^+$	5.51	.025	.139
Religiosity				
• Group	1, 34	.00	.953	.000
• Time	1.00, 34.00$^+$	29.39	.0001	.464
• Group x Time	1.00, 34.00$^+$	4.31	.046	.112
Social Engagement				
• Group	1, 34	1.91	.176	.053
• Time	1.00, 34.00$^+$	1.72	.199	.048
• Group x Time	1.00, 34.00$^+$	.51	.480	.015
Anxiety & Depression				
• Group	1, 34	1.29	.264	.036
• Time	1.00, 34.00$^+$	.23	.637	.007
• Group x Time	1.00, 34.00$^+$	.11	.743	.003

Notes. $^+$corrected for lack of sphericity using Greenhouse-Geisser epsilon; η_p^2 = partial eta squared.

Significant group x time interactions were observed for memory and attention, F(1.00, 34.00)=5.51, p=.025, η_p^2=.139; and religiosity, F(1.00, 34.00 = 4.31, p = .046, η_p^2 = .112, corrected for lack of sphericity using Greenhouse-Geisser epsilon (see Table 5). The partial eta squared showed moderate effect sizes.

To further investigate these interaction, paired-samples t-tests were conducted to compare between the two groups on their post-test and pre-test scores separately. A paired-samples t-test result conducted on the intervention group indicated that memory and attention scores were significantly higher during the post-test (M = 3.62, SD = .71) as compared to the pre-test (M = 3.13, SD = .76, t(17) = -3.513, p < 0.01). A significant difference was also observed in their post-test scores for religiosity (M = 2.93, SD = .28) than in the pre-test (M = 2.51, SD = .26, t(17) = -4.833, p < 0.001). In the control group, however, change was observed only in the religiosity scores, t(17) = -2.650, p < .01), but not in the memory and attention scores.

Next, an independent samples t-test was carried out to compute post minus pre difference scores and compare the two groups on those difference scores. Results indicated that the post-test scores of memory and attention in the intervention group (M = 1.94, SD = 2.34) was higher than in the control group (M = .108, SD = 2.34), $t(34) = -2.347$, $p < .01$). Similar result was found for the religiosity scores, where the intervention group scored higher (M = 1.244, SD = 1.09) compared to the control (M = .556, SD = .889), $t(34) = -2.075$, $p < .01$).

These results indicate that the pre-post difference is not the same between those in the intervention and control groups. The graphical representations of these two interactions can be seen in Figures 2 and 3. Both figures show that the relationship between time and memory and attention as well as religiosity is more significant in the intervention group. In other words, the changes seen in the mean scores of the intervention group over time are more profound than in the control group.

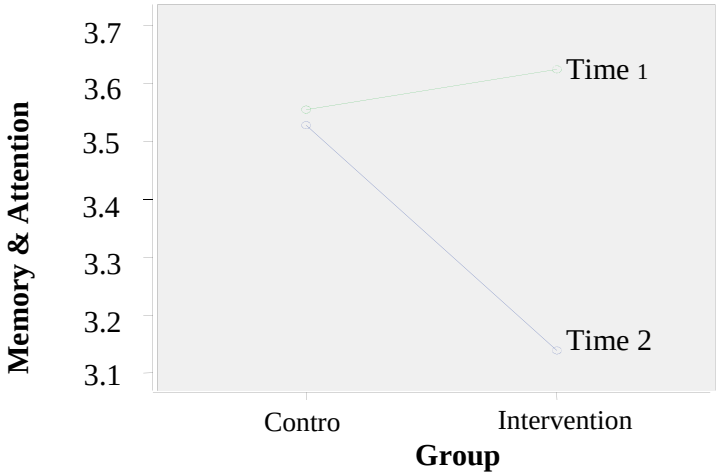


Figure 2. Group x Time Interaction for Memory and Attention.

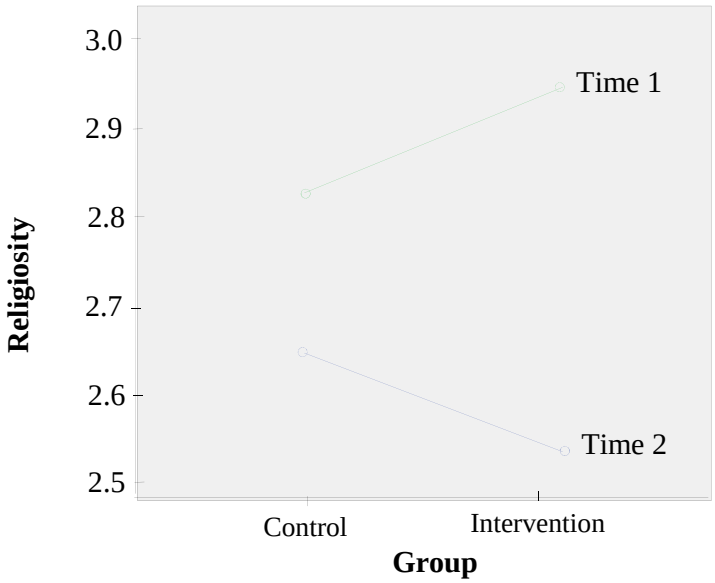


Figure 3. Group x Time Interaction for Religiosity.

Qualitative Results

Responses gathered from the participants provided details about their perception towards the program. Most participants reported that the program was good. For example, responses from the participants included,

"I don't have much to say about the program, but the program is good" and"…should have similar program in the future." (M, 62 years)

For the second question on how the program could be improved, participant's responses included the module, length of the program, number of absences, mode of delivery and refreshments. While the majority were satisfied with the 10-weeks module, two participants mentioned "revising the limit of two absences" to remain in the program. Several others requested the researchers "to be flexible on the timing of the program" in the light that several participants were always late.

More importantly, two major themes drawn from participants' responses were that the program served to equip them with knowledge about old age and provided them with opportunity for bonding and social gathering—or social support. Several participants said they enjoyed "learning about aging from the speakers" and the sessions "made them practice different skills" with their family and friends. While the women were quite conversant on the health consequences of aging, they were not as well informed on ways to help themselves with respect to proper nutrition, exercise and the psychological needs of the elderly. They reported that the sessions were useful because they provided not only information but also skills to help them. In addition, the weekly sessions opened the opportunity for participants to "gather with friends, to share and talk," strengthening the bond between them in the community. Overall, the majority of the feedback from participants were positive, with some insights on the areas of improvement while maintaining that the program should be continued in the future.

We followed up the participants' interviews with reports from their family members whom they co-reside with. Several family members reported the program to be a good support system where the elderly "meet new friends" and had a "platform to share their problems." Essentially, the family members saw the program as serving to fill the elderly women's leisure time while at the same time allowing them to build a "support network." As for observable changes in behaviour, three family members reported no major changes while eight reported some behavioural changes. The reported changes ranged from improved communication, increased emotional pleasure to spiritual fulfilment and more health conscious behaviours like exercising. The rest were not sure. Finally, the majority of family members indicated support for the program and wanted it to continue by also involving them in the intervention program,

"…it is recommended to include one session with family members to give an understanding about the program." (Y, 56 years)

Discussion

Significant main effects of time was found for religiosity as well as memory and attention, suggesting that religiosity as well as memory and attention scores increase over time among those in the intervention group. One explanation for the increase in the religiosity

scores could be due to the consistency of the intervention program conducted within the 10 weeks duration. In each of the session, all participants were introduced to various contents and activities that aimed specifically to increase their well-being in line with the Islamic teachings. In fact, those in the intervention group were already themselves regular attendees in programs organized by the mosque. The intervention program acted as a tool that strengthen their religiosity albeit different methods were used and different information was delivered to them as compared to the mosque activities. Indeed, past studies have provided support for positive relationship between aging and religious involvement, like the psychological need for meaning-making (Martens, Greenberg, Schimel, & Landau, 2004), need for self-uncertainty reduction (Hogg, Adelman, & Blagg, 2010), and need to draw upon social support and other resources provided by religious involvement (Hayward & Krause, 2013). In an increasingly religious society like Malaysia, where the government regulates religious activity, being religious can also be beneficial (refer to Elliott & Hayward, 2009; Hayward & Krause, 2015). For example, studies have found religious involvement to have an impact on individual well-being only when it is socially normative (Diener, Tay, & Myers, 2011; Okulicz-Kozaryn, 2010). Thus, it is not surprising to find religiosity scores to improve over time in this experimental group as compared to those in the control group.

Changes in memory and attention scores over time are more difficult to explain. One explanation can be attributable to the activities and contents of the program itself. Since those in the experimental group attended the sessions regularly for 10 weeks, they experienced different elements in each session that were quite new and exciting to them since the sessions tapped on the very core of their well-being such as regulation of emotions, meaning of life, and recognizing the prevalence of loneliness, depression and anxiety they could be experiencing. They also learned new things in every session or different ways of looking at things. This is supported by Nicholls (2006) who stressed on the importance of support, participation, learning of new skills and sustaining a sense of purpose among the elderly.

Another possibility is that because these women spend much of their time in programs organized by the mosque such as religious classes that focus on reading and understanding the Quran, participants have to memorize verses of the Quran (which is in Arabic) as part of the class requirement. To memorize, they need to pay attention to listening and pronunciation of the verses so that they can recite these verses later. Doing so repeatedly may have helped them to be more focused and attentive enabling them to report higher memory and attention scores over time. Thus, these classes may have indirectly helped them in reporting better memory and attentions scores over time.

More importantly, we found significant interactions between group and time for two measures—memory and attention as well as religiosity. For both these measures, the graphical representations showed that the intervention group reported more pronounced changes over time than the control group, providing support for the effectiveness of the program. No significant interactions were observed for the other two measures of social engagement as well as anxiety and depression. One reason why the group by time interaction for social engagement was not significant could be attributed to the fact that the study was carried out in elderly women who were still functionally independent, who needed little or no assistance with activities of daily living and were still active. Indeed, the main reason for carrying out the study was to enable these elderly women to continue living independently on their own, or with their husband or children, for as long as possible by building on their personal and social resources. Even before the program, many were already occupied with

activities in the community—like religious classes, programs and gatherings at the mosque, etc. Because of their existing interconnectedness and support within the community, besides their mobility, though the intervention group showed slightly better improvement than the control group, this difference was not significant over time. This factor can also protect them from feelings of anxiety and depression that may result from isolation and lack of support in old age (Heylen, 2010; Pinquart & Sorensen, 2001), supporting also the insignificant findings in the anxiety and depression scores over time.

Because of the small number of participants in the intervention group, we also collected qualitative feedback from the women and family members to gain deeper insights and also allow for triangulation of the data (Brannen, 1992). In general, both participants and family members indicated positive support for the program, in line with the quantitative data. Although there were a few family members who reported no change, most observed positive changes. As mentioned by Moffatt, White, Mackintosh, and Howel (2006) qualitative research may provide additional information because it can be used to examine different questions, such as acceptability of the intervention, rather than its outcome. In this case, the qualitative data indicated that both participants and family members not only accepted the community-based program that was developed but also reported benefitting from the program. This, however, may or may not imply effectiveness of the program.

Limitations and Recommendations for Future Studies

The study had several limitations. First, the sample size is relatively small because of the unavailability of active and mobile women within the required age group. In fact, the study had to decrease the age of these women to 55 years rather than the cut-off of 60. However, the moderate effect sizes observed for both main and interaction effects suggest that the tests have sufficient power.

Attrition rate was fairly good because the research assistants maintained contact and would call the women two to three days before the next section. A google group was also set up so that they can check for updates with each other. Participants were also paid for the transportation to the site every week.

Second, all the outcome measures used in the study were self-reports, subjecting the results to problems of method variance. But, this limitation was offset by triangulating the methods used where besides the questionnaires, we also interviewed them at the end of the intervention program. In addition, we also triangulate sources whereby we interviewed women's family members asking them if they had observed any effect on the women over time. This triangulation of methods and sources helps to further validate our data (Angen, 2000).

Third, the participants were not randomly assigned to the two groups. We matched the intervention and control group participants based on the socio-demographic variables of age, education, marital status, living arrangements and physical health (assessed by two items measuring nutrition and exercise) as closely as possible and results indicated no difference between the two groups on these variables.

Conclusion

Though seldom carried out in Malaysia, the present study developed and tested the effectiveness of a multi-component health empowerment intervention program. The results provided some support for the effectiveness of this program as indicated by the significant Group by Time interactions for two of the four measures used. For both these measures—religiosity and memory and attention—changes over time in the intervention group were more pronounced than the control group. Thus, this community-based health empowerment intervention program holds promise. Focusing on the psycho-social needs of the elderly women who are still functional to continue to remain active and engaged within the community is important because in Malaysia, the country's social institutions have been slow to respond to the increase in the number of elderly. Aging is felt more by women as they tend to outlive their husbands but they may not have the economic security to see them through in their old age. Thus, acommunity-based health empowerment approach that builds on the women's own personal and social resources is deemed most beneficial.

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