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Submission date: 03-Mar-2023 02:06PM (UTC+0700)
Submission ID: 2027798605
File name: 389-Article_Text-1724-1-10-20211207.pdf (337.18K)
Word count: 4043
Character count: 20700

eISSN (Online): 2598-0580

Bioscientia Medicina: Journal of Biomedicine & Translational Research

Journal Homepage: www.bioscmed.com

Improving the Quality of Life for the Elderly with Degenerative Diseases through to the Charitas Group Virtual Health Education Program during the Pandemic of the COVID-19

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ARTICLE INFO

Keywords:
Advance Technology
Hypertension and Diabetes
Online education
Old age
SARS-CoV-2

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All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.32539/bsm.v5i8.389

ABSTRACT

Background: In the era of the COVID-19 pandemic, various problems were experienced by the elderly, especially those with degenerative diseases, as the population most at risk of being exposed to COVID-19. The elderly are vulnerable to decreased physical, mental and social health; therefore, a new and effective strategy is needed to improve healthy living behavior in this population. This study aimed to analyze the effect of the Charitas Group virtual health education program on improving the quality of life of the elderly with degenerative diseases in the era of the COVID-19 pandemic. **Methods:** The One Group Pretest-Posttest Pre-Experimental study was with a sample of 33 patients selected by purposive sampling in May - July 2021. The data collection was taken using the World Health Organization Quality of Life – Bref (WHOQOL-Bref) form, translated and validated into Bahasa Indonesia. The data was then compared before and after the intervention and analyzed using the Paired Samples T-Test. **Results:** The T-Test showed a significant difference between the pre-test and post-test results (p-value 0.041 < 0.05). At the same time, the other T-Test results showed a significant influence on the quality of life of the elderly in the specific domains, namely: Psychological (p-value 0.025), Social Relationship (p-value 0.033) and Environmental (p-value 0.034). **Conclusions:** The Charitas Group virtual health education program significantly influences the quality of life of elderly people with degenerative diseases in the COVID-19 pandemic era.

1. Introduction

On December 31, 2019, the WHO China Country Office reported pneumonia of unknown etiology in Wuhan City, China, identified the case as a novel of coronavirus[1]. The pneumonic pandemic has a significant impact on the as elderly's health during isolation and lockdown. Physical inactivity or exercising at home can cause muscle weakness, physical decline, and an increase in the risk of falling; moreover, lack of cognitive stimulus obtained from socialization and contact with the broader world can exacerbate cognitive impairment and behavioral symptoms of dementia elderly[2]. When faced with the challenge of being socially isolated as the elderly, they are especially vulnerable to rapid decline[3].

The elderly patients suffering from degenerative diseases are at more significant impact from isolation, loneliness, or depression[3]. Hypertension and diabetes already have a higher risk of depression than the younger population and are often not detected in the elderly group[4,5]. Their ability to control their blood

sugar levels can be influenced by their fear of contracting COVID-19, and avoiding hospitalization because other conditions necessitate treatment will cause tremendous psychological stress[6]. Pain and anxiety were the most frequently reported problems regarding the quality of life in the elderly with chronic degenerative diseases in China (17.6 percent)[7]. The limited access to clinical services during the quarantine period may have resulted in a lack of patient compliance in taking degenerative medicine prescribed by doctors[8].

Various problems experienced by the elderly during the isolation period require health intervention to improve physical activity and healthy behavior[9]. The Charitas Group, a health institution consisting of six hospitals and three clinics in various regions in Indonesia, simultaneously implements health promotion programs in virtual health education. As part of a current health promotion campaign, a digital-based approach was used to communicate between the facilitators and all members daily via video conference Zoom, YouTube, and WhatsApp groups. It employs technology and various brain gym, physical activity, e-learning, and health meditation to achieve its goals.

2. Methods

This research was conducted at the Senior Citizens Virtual Club under the supervision of the Charitas Group Hospitals. Data collection was carried out two times before and after the intervention, from May to July 2021. The total sampling size was 250 respondents who were all older people with degenerative diseases, resided in various provinces in Indonesia.

The One Group Pretest-Posttest Pre-Experimental design study had several criteria. The study used total purposive sampling as the sampling method. The inclusion factors such as age ≥ 60 years, minimum education of junior high school/equivalent, were able to use digital applications on the device, had audiovisual capabilities and could communicate effectively both orally and in writing. The exclusion criteria in the study were the pre-elderly age, healthy condition, or any diseases other than the degenerative ones, and the elderly never participated in the club activities.

The study commenced by describing the objectives of the study to the respondents via WhatsApp. The respondents who agreed were asked to fill the digital WHOQOL-BREF in the Indonesian version questionnaire10. The questionnaire consisted of 26 questions: two general questions relating to the respondents' perceptions of their quality of life, satisfaction in life and health condition; 4 domains such as the physical domain consisted of 7 questions; psychological domain consisted of 6 questions; social relationships domain consisted of 3 questions, and environmental domain consisted of 8 questions. Every question scored from 1 to 5. The total score of every domain was calculated and transformed by using the transformation table with a scale of 0-100.

The total score of every domain was examined by using the Kolmogorov-Smirnov normality test. When the data found in the study were normally distributed (p-value > 0.05), then the parametric statistical tests were carried out using the Paired Samples T-Test. Brain gym, physical activity, e-learning, health meditation, group discussion, and music were among the intervention offered at the Senior Citizens Virtual Club for one month study. The Universitas Sriwijaya Faculty of Public Health issued a Certificate of Research Ethics with No. 187/UN9.FKM/TU.KKE/2021

3. Result

Ninety-four respondents participated in the pre-test (37.60%), sixty of them join the post-test stage (63.83%), and thirty-three respondents met the final screening qualifications. The respondents were aged between 60-78 years; more women than men (66.7%); multiethnic; primarily undergraduate and postgraduate education (51.5%); most of them were not working/retired (72.7%); mostly married (72.7%) and had at least 1 type of degenerative disease (72.7%). Hypertension was the most common degenerative disease (35.6%), followed by arthritis (26.7%). The majority of respondents said they did not need help with their daily activities (90.9%). Table 1 displayed the

characteristics of the respondents.

The average differences between the results of the pre-test (baseline) and post-test scores were calculated after the intervention program was carried out for one month, as shown in Table 2. The difference between average pre-test and post-test scores showed significant results (p-value 0.041). According to the results of the total assessment of each aspect or domain in Table 3, the psychological domain (p-value 0.025), the social domain (p-value 0.033), and the environmental domain (p-value 0.033) all showed a significant increase in value (p-value 0.034.) As per Table 4, there was a significant increase in pre-test and post-test results after the participants received virtual health education, as well as a significant improvement in the aspect of enjoying life (p-value 0.001), the ability to concentrate (p-value 0.012), and the sense of security in everyday life after the interventions (p-value 0.017).

Table 1. Characteristics of respondents based on age, gender, ethnic, education, occupation, marital status, number and types of degenerative diseases and assistance needs (n=33)

No.	Variables	Frequency n=33	Percentage %
1	**Age (years old)**		
	60-67	19	57.60
	68-78	14	42.40
2	**Gender**		
	Male	11	33.30
	Female	22	66.70
3	**Ethnic**		
	Chinese	20	60.60
	Palembang	3	9.10
	Minang	2	6.10
	Javanese	8	24.20
4	**Level of Education**		
	Junior High School	3	9.10
	Senior High School	8	24.20
	Diploma	5	15.20
	Undergraduate and Postgraduate	17	51.50
5	**Occupation**		
	Not working/retired	24	72.70
	Government employee	2	6.10
	Entrepreneur/Self employee	4	12.10
	Private employee	1	3.00
	Consultant	1	3.00
	Doctor	1	3.00
6	**Marital Status**		
	Married	24	72.70
	Single parent/widower/widow	9	27.30
7	**Number Degenerative Diseases**		
	1 degenerative disease	24	72.70
	2 degenerative diseases	6	18.20
	> 2 degenerative diseases	3	9.10
8	**Types of degenerative diseases**		
	Diabetes	6	13.30
	Hypertension	16	35.60
	Heart Disease	3	6.70
	Kidney failure	1	2.20
	Arthritis	12	26.70
	Cancer	3	6.70
	Cataract	1	2.20
	Hypercholesterol	3	6.70
9	**The Need for Assistance**		
	No	30	90.90
	Yes	3	9.10

Table 2. The differences between pretest and posttest results after the intervention program (n=33)

Results	*Minimum*	Maximun	Mean	*p-value***
Pre-test (baseline)	50.00	84.50	61.90±7.84	0.041
Post-test (follow-up)	48.50	90.75	64.54±9.48	

* mean -2.636

**significant p-value < α 0.05

Table 3. The differences between pretest and posttest results in the 4 domains of quality of life after the intervention program (n=33)

No	Virtual Education	Follow-up Result (Post-test)	Quality of Life				Total		*p-value*	OR	95% CI
			Poor		Good						
			n	%	n	%	n	%			
1	**Physical Domain**	**Poor**	8	80	2	20	10	100	0.001	19.000	2.877 - 125.481
		Good	4	17.4	19	82.6	23	100			
2	**Psychological Domain**	**Poor**	9	100	0	0	9	100	0.000	8.000	2.776 - 23.056
		Good	3	12.5	21	87.5	24	100			
3	**Social Domain**	**Poor**	12	60	8	40	20	100	0.001	0.400	0.234 - 0.684
		Good	0	0	13	100	13	100			
4	**Environmental Domain**	**Poor**	6	75	2	25	8	100	0.015	9.500	1.501 - 60.107
		Good	6	24	19	76	25	100			

Table 4. The whoqol-bref score increase in the charitas senior citizen virtual club participants after the interventions (n=33)

No	Domains	Facets	Score		*p-value*
			Pre-Test (range)	Post-Test (range)	
1	**Physical**	How would you rate your quality of life?	4 (2 - 5)	4 (3 - 5)	0,744
2		How satisfied are you with your health?	3 (1 - 4)	3 (1 - 5)	0,281
3		To what extent do you feel that physical pain prevents you from doing what you need to do?	4 (2 - 5)	4 (3 - 5)	0,201
4		How much do you need any medical treatment to function in your daily life?	4 (3 - 5)	4 (3 - 5)	1,000
5		Do you have enough energy for everyday life?	3 (2 - 5)	3 (1 - 5)	0,62
6		How satisfied are you with your sleep?	3 (1 - 5)	4 (1 - 5)	0,206
7		How satisfied are you with your ability to perform your daily living activities?	4 (1 - 4)	4 (1 - 5)	0,361
8		How satisfied are you with your work capacity?	3 (1 - 4)	3 (1 - 5)	0,557
9		How well are you able to get around?	4 (3 - 4)	4 (1 - 5)	0,662
10	**Psychological**	How much do you enjoy life?	3 (2 - 4)	4 (3 - 5)	0,001
11		To what extent do you feel your life to be meaningful?	3 (3 - 5)	4 (2 - 5)	0,201
12		How well are you able to concentrate?	3 (2 - 4)	3 (2 - 5)	0,012
13		Are you able to accept your bodily appearance?	3 (3 - 4)	3 (3 - 5)	0,254
14		How satisfied are you with yourself?	4 (1 - 5)	4 (3 - 5)	0,677
15		How often do you have negative feelings such as blue mood, despair, anxiety, depression?	4 (2 - 5)	4 (2 - 5)	0,414
16	**Social Relationship**	How satisfied are you with your personal relationships?	3 (3 - 5)	4 (3 - 5)	0,211
17		How satisfied are you with your sex life?	3 (1 - 4)	3 (1 - 4)	0,211
18		How satisfied are you with the support you get from your friends?	3 (3 - 5)	4 (3 - 5)	0,051
19	**Environmental**	How safe do you feel in your daily life?	3 (2 - 4)	3 (2 - 5)	0,017
20		How healthy is your physical environment?	3 (3 - 4)	4 (2 - 5)	0,263
21		Have you enough money to meet your needs?	3 (2 - 5)	3 (2 - 5)	0,263
22		How available to you is the information that you need in your day-to-day life?	3 (3 - 5)	4 (3 - 5)	0,071
23		To what extent do you have the opportunity for leisure activities?	3 (2 - 5)	3 (2 - 4)	0,712
24		How satisfied are you with the conditions of your living place?	4 (3 - 5)	4 (3 - 5)	1,000
25		How satisfied are you with your access to health services?	4 (1 - 5)	4 (3 - 5)	0,051
26		How satisfied are you with your transport?	4 (3 - 5)	4 (3 - 4)	0,263

4. Discussion

The interventions provided at the Charitas Senior Citizens Virtual Club showed some improvements in the quality of life of the elderly with degenerative diseases. The influence of physical factors on quality of life has been widely studied before. The research was conducted in Indonesia by Jacob in Karubaga Village, Karubaga District, Tolikara Regency, Papua[11] and Kosim (2015) on residents in Sentul Village, Sumbersuko District, Lumajang Regency[12] showed that there was an influence of physical factors on the quality of life of the local population. While in the U.S., participation in at least 300 min/ week of Lifestyle Light-intensity Physical Activity (LLPA) was associated with more favorable health outcomes[13].

The interventions provided at the Charitas Senior Citizens Virtual Club provided several programs for the elderly with degenerative diseases. Brain exercise is beneficial for maintaining the elderly's ability by providing stimulation to the brain[14]. Brain vitalization exercise has been shown to have a significant effect on increasing the cognitive function of the elderly and reducing the stress level of the elderly in dealing with various life stressors[15]. Brain exercise can be done by the elderly at any time and will be more effective when done with optimal focus and concentration with proper scheduling and training[15]. Brain gym significantly reduced sleep disturbance and anxiety in the elderly after eight weeks of intervention (*p-value* < 0.001)[16]. Health education is the promotion in which specific aspects of old age can adapt to a healthy and active life. A study in Japan also found that an educational program focused on knowledge and exercise can improve the quality of life[17]. Health education through live streaming YouTube can increase the community knowledge, especially families with the elderly, to pay more attention to the health conditions of the elderly, both physical and psychosocial[18]. Regular meditation practice can improve telomere regulation, which is linked to both the aging process and the development of cancer[19]. By practicing meditation, you can help yourself recover from memory loss while also improving various aspects of your mental health that are essential for cognitive function[20]. Meditation practice can help reduce stress[21] and lower blood pressure in people with hypertension [22,23]. Music can also affect improving a person's quality of life[24]. Javanese karawitan traditional music improved the quality of life of the local elderly[25]. Community singing groups have a significant effect on mental health, anxiety and depression in the elderly [26]. Singing was part of therapy for chronic respiratory disorders such as Chronic Obstructive Pulmonary Disease (COPD), bronchiectasis, interstitial lung disease, asthma, and respiratory arrest during sleep[27]. Regular karaoke singing practice could improve cognitive function in the elderly and could even help improve physical function, especially in sarcopenia[28].

The interventions provided were for improvements in the quality of life of the elderly with degenerative diseases. Group discussions have improved the quality of life of patients with diabetes mellitus[29]. The opportunity to share experiences and receive feedback showed an improvement in the quality of life of diabetic patients after a group discussion with instructive feedback. Unhealthy behaviors such as smoking showed that emotional support and information through online social groups (such as WhatsApp and Facebook) could support relapse prevention[30]. Participants in the online social group shared their views and personal experiences (55.5%), provided encouragement (28.7%) and shared knowledge and information (15.8%) with other participants.

The study does have some limitations. Respondents over the age of 60 may be biased due to their age range. Although technical instructions are provided, respondents may be frustrated by the digital questionnaire application. Second, due to the rigorous exclusion to ensure that the criteria are met, there is a lack of sample size. A better study design with a control group will improve the study's ability to conduct a conclusive comparison.

5. Conclusions

There was a significant effect of the Charitas Group Virtual Health Education program on improving the quality of life of the elderly with degenerative diseases in the COVID-19 pandemic era, especially in the

domains of Psychology, Social and Environment. Advanced technology that enables people to communicate and form virtual communities can revolutionize health promotion and support a paradigm shift from curative to preventive and promotive action to improve the quality of life of the elderly with degenerative diseases.

6. Acknowledgement

We would like to thank the Management of Charitas Group and Charitas Hospitals Foundation, which has allowed this research and all Charitas Senior Citizens Virtual Club members who have supported and collaborated in this study.

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