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The Effects of an Online Guided Exercise Programme in Decreasing Symptoms of Mild Depression and High Blood Pressure in a Group of Elderly Males During the COVID-19 Pandemic

[1]Sahar. A. Albermany, [2]Hikmat Al-Lami

[1,2] College of Medicine, University of Al-Qadisiyah, Iraq
*Corresponding Author: hikmat.allami@qu.edu.iq. 009647801346293 (Al-Lami)

Abstract

The aim of the study is to determine the efficacy of online guided exercise as a treatment of mild depression in a sample of recently retired older adults and if it was beneficial in decreasing relatively high blood pressure in the sample.After surveying a group of 612 people who were all 60 years and older and all retired in the last 6 months, 67 people were identified of having mild depression using the Geriatric Depression Scale. These depressed individuals were divided into a control and an experimental group which participated in exercise sessions provided online for (45 - 60 min) daily for 8 weeks in which participants measured their blood pressure before and immediately after the session and their depressive symptoms were followed using the same scale after the end of the programme.The conclusion was that the online guided exercise programmewhich wasprepared by the researchers is beneficial in decreasing symptoms of mild depression and blood pressure in elderly males during the COVID-19 pandemic

Keywords: (exercise, mild depression, blood pressure, COVID-19).

Introduction

Since March 2020, the Iraqi government applied a complete lockdown to prevent the spread of COVID-19 among the Iraqi people. This lockdown had many consequences on the lives of most people and a decrease in outdoor activity was inevitable which may lead to a major impact on many aspects of people's lives and the mental health aspect is definitely one [1,2].It is now well observed that the elderly are the most at risk of dying due to COVID-19 [3].The difficult economic situation in the country had led to new legislation to decrease the retirement age from 63 to 60 years old which was applied in 2020 [4].So we can imagine the challenges faced by people who are 60 years old and older at this time from the fears of getting a deadly virus to a retirement that is earlier than expected to forced confinement at home, we could think that many potential mental health problems may appear in this already vulnerable group [5].There is considerable evidence that social environmental factors can affect the health and general wellbeing of the elderly. These variables may affect general health either directly or indirectly. For example, the surrounding circumstances (like the presence of a pandemic), may affect the ability to exercise safely and the decrease of activity is a risk for obesity and other health problems.Also, it has been shown that participation in social gatherings has a positive result on the moods and the functioning of the aging population [6].Some studies have shown a connection between social activity and close relationships with reduced risk of heart disease [7].The positive effects of physical activity on many aspects of older adult's health such as decreasing cognitive, mental, and cardiorespiratory problems have been noticed in many studies with even a finding of decreased morbidity and mortality [8].Depression can be defined as a disorder of mood that causes persistent feelings of sadness or loss of interest which affects the social and occupational functioning of a person in a negative way [9].There is an identifiable risk for the increased prevalence of depressive symptoms in older age although in most cases they don't qualify for a diagnosis of major depressive disorder which makes those cases more fit to be labeled as cases of (sub threshold or sub syndromal depression) which is found to be as common as 8.8% to 21.3% by some authors [10].This sub syndromal depression if left untreated is a risk factor for many problems especially the development of major depressive disorder, suicide, and general negative effect on the quality of life [10].The prevalence of depression in the elderly is variable among different countries and the figures are even different in the same country at different times using different assessment methods.

Health care workers usually notice that depression in the elderly can present as somatic symptoms causing functional impairment.Retirement is definitely a major change in the lifestyle of older adults leading to a decrease in physical and mental activity and may even affect the financial status. These changes may

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beconsidered as risk factors for depression [11].The evidence of the effectiveness of exercise to decrease depression is well established and may be explained by the ability of exercise to increase levels of neurotransmitters which are decreased in depressed people like serotonin and norepinephrine. In spite of these benefits older adults usually have less physical activity due to many factors like joint pain and other health challenges [12].Regarding the benefits of exercise in reducing blood pressure, although it is advised by most health care delivery systems that exercise is practiced more in patients with hypertension, it's effects are in many ways not consistent [13].In addition, the effects of exercise on hypertensive patients have so many confounding factors like the age of the sample, the type of the exercise, whether patients are taking antihypertensive medications or not among others [14].The aim of the study is to determine the efficacy of online guided exercise as a treatment of mild depression in a sample of recently retired older adults and if it was beneficial in decreasing relatively high blood pressure in the sample.

Material and method

Study design:

This is an experimental study, The sample was a convenient one by targeting the newly retired male staff of the ministry of education the department of Al Qadisiyah governorate which was retired as a result of setting a new retirement age (60 years).

Method:

612forms of the Arabic version of the Geriatric Depression Scale were given to males during the period from 15th of March to the 25th of May 2020 [15].

The number of people who qualified for the diagnosis of depression according to the GDS (score 5,6 and 7) was 67. Those whose score was more than 8 which indicated moderate to severe depression were excluded from the study and were advised to see a psychiatrist. Also, we excluded any patient with a serious physical condition that can affect compliance with the study exercise program. In addition, hypertensive patients who are on medication were also excluded.Verbal consent was obtained from all the participants after explaining the nature of the study had been explained to them.Two groups were formed the experimental group was 35 people and a control group of 32 people which were kept on a waiting list.During the study period, 3 people dropped out from the experimental group due to commitment issues.The online guided exercise program used the ZOOM app for 45 minutes to one hour daily for 4 to 5 days a week for 8 weeks, the exercise programme for each week was 3 sessions of physical exercise (walking, aerobics, and slow running) and 2 sessions of relaxation exercise with soft music.Measurements of blood pressure were recorded by patients themselves using an electronic sphygmomanometer before the start and after 15 min warm-up followed by 12min of walking using a treadmill with the same speed for all participants the after readings were recorded (both times they were recorded directly on video by the researchers).GDS scores were recorded after the end of the program for both groups.

Statistical Analysis:

The statistical test used in the study was the SPSS programme using (Percentages,Mean, SD,Related Samples,Independent Samples)

Results

Table 1

showing the difference in the mean of GDS score and standard deviation between the control and the experimental group before and after the programme

Study group	Mean for the pre-test	SD	Mean for the post test	SD	T	P
Experimental	6.37	1.35	4.84	1.04	26.42	**0.012**
Control	6.11	1.88	5.65	0.55	35.62	**0.124**

There was a decrease in the mean in both groups but the experimental group had a statistically significant decrease($p<0.05$) in comparison with the control group.

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Table 2

showing the mean of blood pressure readings and the standard deviation recorded before and after the exercise session on the first day and the last day of the programme

Blood pressure	**Mean for the pre-test**		**SD**	**Mean for the post test**		**SD**	**T**	**P**
Systolic	Before exercise	149.68	7.66	Before exercise	128.15	6.38	24.63	**0.004**
	After exercise	160.06	9.84	After exercise	134.27	5.56	29.82	**0.014**
diastolic	Before exercise	91.62	6.56	Before exercise	82.03	5.27	17.09	**0.002**
	After exercise	96.74	4.35	After exercise	85.23	4.21	18.75	**0.001**

Blood pressure readings increased immediately after the exercise sessions but the readings on the last day were decreased before and after the session in comparison with the first day with a statistically significant result ($p<0.05$).

Discussion

The percentage of mild depression was 10.94% but since the sample was not random this result can't be considered representative of the prevalence of depression in this age group in general, that being said the number is a fairly reasonable result.The mean GDS score showed a statistically significant decrease after the end of the study program which indicates a beneficial effect of exercise on decreasing symptoms of depression, a finding that is consistent with many studies like those performed in ordinary conditions like Blumenthal et al who although concluded that exercise can be considered as an alternative for antidepressants in the treatment of depression his results showed that the experimental group scores were not significantly lower than other groups which may be attributed to the facts that his sample was a random one or due to using a different scale in his method [16].When we compare our study results with the meta-analysis on the subject performed by S.Heinzel et.al we can see somehow similar results that exercise (of almost all types tested) had a therapeutic effect on depression in older adults. Another meta-analysis done by Schuch in 2016 found comparable results [17,18].In a systematic review done by Mura. G and Carta. M.G in 2013 the main finding was a lack of high-quality research on the subject although they concluded some promising effects for exercise when combined with antidepressants in the elderly [19].The control group also had some reduction in the mean score of GDS but was insignificant in comparison with the experimental group.When we take into consideration the special circumstances that surrounded the period in which our study was conducted i.e. a total lockdown due to the COVID-19 pandemic which led to choosing an online guided exercise programme we could compare our results with other studies about the same variables in similar conditions.In a study that measured the mental health benefits of physical activity in older adults in the United States and Canada during the COVID-19 pandemic carried out by Callow et.al, it was found that being physically active had a protective effect for depression and anxiety in this age groupBut that study was a cross-sectional one with a random sample being surveyed by mail and through social media. So, in spite of the different methodology (although they also used GDS) the results were similar [20].Other papers that studied the effect of physical activity through using virtual reality in the elderly showed promising effects in protecting this age group from different mental health problems and promoted general wellbeing [21].The effect of exercise on blood pressure was found to be an acute increase but with a general decrease in the numbers in the second half of the study which may indicate a general adjustment to the increase in the physical activity of the sample.Studies performed on this matter showed mostly a decrease in blood pressure following the exercise with some studies found a decrease only in the diastolic but not the systolic blood pressure. The difference in findings in our study may be explained by applying different exercise types or due to the difference in the sample's general health and lifestyle [22,23].

Conclusion

The exercise programme which was prepared is beneficial in alleviating symptoms of mild depression in elderly males when it's online guided during the COVID-19 measures of social distancing and total lockdown, blood pressure in elderly males readings can be reduced using exercise during the COVID-19 pandemic.

References

1. Centers for Disease Control and Prevention. Mental health and coping during COVID-19. CDC. (2019).Available online: www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html

2. Qiu, J.; Shen, B.; Zhao, M.;Wang, Z.; Xie, B.; Xu, Y. Anationwide survey of psychological distress amongChinese people in the COVID-19 epidemic: Implications and policy recommendations. Gen. Psychiatry(2020);33, e100213. [CrossRef] [PubMed]

3. Centers for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19). CDC. 2019. Available online: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html

4. The Iraqi Government. https://gds.gov.iq/iraqs-parliament-approves-changes-to-pension-anti-corruption-laws-debates-new-election-legislation/# 21 Nov 2019

5. Shahid Z, Kalayanamitra R, McClafferty B, et al: COVID-19 and older adults: What we know. J Am GeriatrSoc(2020); 68(5) 926-929

6. Hodge AM, English DR, Giles GG, Flicker L Social connectedness and predictors of successful ageing. Maturitas(2013);75(4):361–366.

7.Loucks EB, Berkman LF, Gruenewald TL, Seeman TE Relation of social integration to inflammatory marker concentrations in men and women 70 to 79 years. American J Cardiology (2006) ;97(7):1010–1016

8. Jeste DV, Palmer BW, Rettew DC, Boardman S Positive psychiatry: its time has come. J Clin Psychiatry(2015); 76(6):675–683

9.C. Power, E. Greene, and B. A. Lawlor: Depression in Late Life: Etiology,Presentation, and Management. Springer Nature Singapore Pte Ltd. H. Chiu et al. (eds.), Mental Health and Illness of the Elderly, Mental Health and IllnessWorldwide(2016) ;2, DOI 10.1007/978-981-10-0370-7_101

10. Vahia IV, Meeks TW, Thompson WK, Depp CA, Zisook S, Allison M,. . .Jeste DV: Subthreshold depression and successful aging in older women. Am J GeriatrPsychiatry(2010) ; 18 (3):212–220

11. Mosca I, Barrett A : The impact of voluntary and involuntary retirement on mental health: evidence from older Irish adults. J Ment Health Policy Econ(2016); 19(1):33–44

12.Sjösten N, Kivelä SL (2006) The effects of physical exercise on depressive symptoms among the aged: a systematic review. Int J Geriatr Psychiatry 21(5):410–418

13. Pescatello LS, Franklin BA, Fagard R, Farquhar WB, Kelley GA, Ray CA. American College of Sports Medicine position stand: exercise and hypertension. *MedSci Sports Exerc*. (2004); 36:533-553.

14. Carpio-Rivera E, Moncada-Jiménez J, Salazar-Rojas W, Solera-Herrera A,: Acute Effects of Exercise on Blood Pressure: A Meta-Analytic Investigation. Arq Bras Cardiol. (2016) ; 106(5):422-433

15. Yesavage JA, Brink TL, Rose TL, et al: Development and validation of a geriatric depression screening scale: a preliminary report. J PsychiatrRes(1982); 17(1):37-49

16. Blumenthal JA, Babyak MA, Moore KA, et al: Effects of exercise training on older patients with major depression. Arch Intern Med(1999) ; 159: 2349-2356

17. Heinzel, Stephan; Lawrence, Jimmy B.; Kallies, Gunnar; Rapp, Michael A.; Heissel, Andreas GeroPsych: The Journal of Gerontopsychology and Geriatric Psychiatry, (2015); Vol 28(4), , 149-162. http://dx.doi.org/10.1024/1662-9647/a000133

18. Schuch FB, Vancampfort D, Rosenbaum S, et al:Exercise for depression in older adults: a meta-analysis of randomized controlled trials adjusting for publication bias. RevistaBrasileira de Psiquiatria; (2016); 38:247–254

19. Mura G and Carta MG: Physical Activity in Depressed Elderly. A Systematic Review.Clinical Practice & Epidemiology in Mental Health(2013); 9, 125-135

20. Callow DD, Arnold-Nedimala NA, Jordan LS, et al,: The Mental Health Benefits of Physical Activity in Older Adults Survive the COVID-19 Pandemic. Am J of Geriatric Psychiatry(2020); 28:10: 1046-1057

21. Gao Z , Lee JE, McDonough DJ and Albers C:Virtual Reality Exercise as a Coping Strategy for Health and Wellness Promotion in Older Adults during the COVID-19 Pandemic.J. Clin. Med, (2020); 9, 1986; doi:10.3390/jcm9061986

22. GhadiehAS, Saab B: Evidence for exercise training in the management of hypertension in adults. Canadian Family Physician(2015); Vol 61: 233-239

23. Stewart KJ, Bacher AC, Turner KL, et al:Effect of Exercise on Blood Pressure in Older Persons A Randomized Controlled Trial. Arch Intern Med. (2005); 165:756-762