REFACS

Original Article
Rev. Fam., Ciclos Vida Saúde Contexto Soc.
http://seer.uftm.edu.br/revistaeletronica/index.php/refacs/index
ISSN: 2318-8413 DOI: 10.18554/refacs.v10i3.5579

Anxiety and depression in the elderly according to regular physical exercise

Ansiedade e depressão em idosos segundo a realização de exercício físico regular

Ansiedad y depresión en ancianos según la realización de ejercicio físico regular

Mariana Rosa Ribeiro Cardoso[1], Grace de Sousa Lopes[2], Bruna Ferreira Silva[3]
Joyce Mara Gabriel Duarte[4], Adriana Cristina Nicolussi[1]

Received: 24/06/2021 **Approved:** 20/05/2022 **Published:** 30/09/2022

Objective: to identify and compare the presence of anxiety and depression in the elderly according to regular physical exercise. **Methods:** quantitative, analytical and cross-sectional study, carried out with the elderly in a Basic Health Unit, between April and September/2019. The following tools were used: sociodemographic data form and Hospital Anxiety and Depression Scale. Descriptive and inferential analysis was performed using the T Test for independent samples. **Results:** 23 elderly people were interviewed in the exercise group and 40 in the control group. There was a predominance of females, between 60 and 69 years old, white, retired or pensioners, who lived with someone else and with incomplete elementary education for both groups. Anxiety and depression scores were higher in the control group (means = 7.47 and 7.65, respectively) compared to the exercise group (means = 5.43 and 4.17, respectively), with a statistically significant difference (p<0 .05). **Conclusion:** regular physical exercise can help prevent symptoms of anxiety and depression in the elderly.
Descriptors: Anxiety; Depression; Exercise; Aged; Health of the elderly.

Objetivo: identificar e comparar a presença de ansiedade e depressão em idosos segundo a realização de exercício físico regular. **Método**: estudo quantitativo, analítico e transversal, realizado com idosos em uma Unidade Básica de Saúde, entre abril e setembro/2019. Foram utilizados: formulário de dados sociodemográficos e Escala Hospitalar de Ansiedade e Depressão. Foi realizada a análise descritiva e inferencial com a utilização do Teste T para amostras independentes. **Resultados:** foram entrevistados 23 idosos no grupo exercício e 40 no grupo controle. Houve predominância do sexo feminino, entre 60 e 69 anos, brancos, aposentados ou pensionistas, residentes com acompanhantes e com ensino fundamental incompleto para ambos os grupos. Os escores de ansiedade e depressão foram superiores no grupo controle (médias=7,47 e 7,65, respectivamente) comparados ao grupo exercício (médias=5,43 e 4,17, respectivamente), com diferença estatisticamente significante (p<0,05). **Conclusão:** a realização de exercício físico regular pode auxiliar na prevenção de sintomas de ansiedade e depressão em idosos.
Descritores: Ansiedade; Depressão; Exercício físico; Idoso; Saúde do idoso.

Objetivo: identificar y comparar la presencia de ansiedad y depresión en ancianos según la realización de ejercicio físico regular. **Método:** estudio cuantitativo, analítico y transversal, realizado con ancianos en una Unidad Básica de Salud, entre abril y septiembre/2019. Se utilizaron: el formulario de datos sociodemográficos y la Escala Hospitalaria de Ansiedad y Depresión. Se realizó un análisis descriptivo e inferencial con la utilización de la Prueba T para muestras independientes. **Resultados:** Se entrevistó a 23 ancianos en el grupo de ejercicio y a 40 en el grupo de control. Hubo un predominio de sexo femenino, de entre 60 y 69 años, blancos, jubilados o pensionistas, residentes con acompañantes y con estudios primarios incompletos para ambos grupos. Las puntuaciones de ansiedad y depresión fueron mayores en el grupo de control (medias=7,47 y 7,65, respectivamente) en comparación con el grupo de ejercicio (medias=5,43 y 4,17, respectivamente), con una diferencia estadísticamente significativa (p<0,05). **Conclusión:** el ejercicio físico regular puede ayudar a prevenir los síntomas de ansiedad y depresión en los ancianos.
Descriptores: Ansiedad; Depresión; Ejercicio físico; Anciano; Salud del anciano.

Corresponding Author: Adriana Cristina Nicolussi - drinicolussi@yahoo.com.br

1. Postgraduate Program in Health Care at the Universidade Federal do Triângulo Mineiro (UFTM), Uberaba/MG, Brazil.
2. Multiprofessional Residency Program in Elderly Health at UFTM, Uberaba/MG, Brazil.
3. Municipal Administration of Uberlândia/MG, Brazil.
4. Technical Nursing Course, Center for Professional Education (CEFORES), UFTM, Uberaba/MG, Brazil.
5. Undergraduate Nursing Course, UFTM, Uberaba/MG, Brazil.

INTRODUCTION

As a result of Brazil's development and technology, especially in the health area, the Brazilian population has gone through a process of reduced fertility and increased life expectancy, resulting in an aging population. Aging is a natural process, marked by physiological changes that can cause physical and mental illness, contributing to functional losses and thus negatively impacting quality of life[1].

In order to reduce negative influences on physical and psychological health, it is important to promote differentiated care with planning and interventions that contribute to safe and comprehensive quality care[2].

Anxiety involves mood disorders and negative affective manifestations, fragility and low self-esteem, generating psychological suffering; and it can cause a higher prevalence of physical illness and psychosocial impairment, decreasing quality of life and increasing the risks of suffering and disability. Anxiety can also be associated with depression[3].

Depression is a common mental disorder characterized by persistent sadness and a loss of desire and satisfaction in previously pleasurable activities; it can cause insomnia, tiredness, loss of appetite and concentration. Its effects can last for the short or long term and impact a person's ability to carry out their activities and live satisfactorily[4].

Anxiety and depression can reduce quality of life, as they impact treatment adherence and increase the severity of symptoms. The assessment of anxiety and depression provides subsidies that enable the planning of more effective interventions to reduce the emotional suffering of the individual experiencing[5].

These disorders have become common to society in general, and their negative impacts on the well-being of individuals are recognized, and widely associated with worsening physical health, increased risk of cardiovascular disease and premature mortality[6].

Anxiety is associated with changes in the fear neurocircuitry, so that the “upward” processes in the amygdala that respond to threat are exaggerated and the regulation of these processes by the prefrontal cortex and hippocampus is impaired, which may also be responsible for the increased risk of developing neuropsychiatric disorders, including depression and dementia. Both pharmacological (such as antidepressant medications) and non-pharmacological (cognitive-behavioral, therapy, exercise) interventions can reverse stress-induced brain damage[7].

While pharmacotherapy and psychological interventions are helpful for many, these treatment approaches are not effective for everyone and are insufficient to deal with complications. At that moment, the benefits of physical exercise are pointed out, affirming it as

a promising additional treatment for the integral health of individuals[6].

In search of effective interventions in health promotion, it is observed that, during the aging process, the individual is susceptible to the emergence of diseases resulting from a sedentary lifestyle. A study has shown the benefits of an active life that go beyond the biological dimension and positively affect the biopsychosocial context of the elderly, and it is important to mention the fact that the absence of activities aimed at the elderly can cause anxiety and depression[8].

The regular practice of physical exercises is widely recognized as a non-pharmacological strategy for the treatment and prevention of various diseases, whether metabolic, physical and/or psychological[9].

Among the activities aimed at the elderly, it is important to offer the practice of regular physical exercise, guided by a professional in the health services, since it has been proven that they can reduce depressive symptoms, among other benefits, such as improving vitality, fitness physical, psychological well-being and quality of life[10].

As physical inactivity is a condition that impacts the development of anxiety, mental stress, chronic inflammation, susceptibility to infections, and other consequences, there is a need to encourage health professionals, their respective regulatory councils, universities, foundations of support for research, media and political authorities to raise awareness of the impact of physical exercise on the integral health of human beings[11]. In view of this, this study aims to identify and compare the presence of anxiety and depression in the elderly according to regular physical exercise.

METHODS

This is a quantitative, analytical and cross-sectional study, carried out in a Basic Health Unit (BHU), located in a city in the interior of the state of Minas Gerais, Brazil.

The sample inclusion criteria were: individuals aged 60 years or older, of both sexes, who were followed up at the aforementioned BHU. The elderly were divided into two groups, one that performed physical exercise (Exercise Group – EG); and the other consisted of elderly people who did not perform any exercise (Control Group – CG). Elderly people who performed physical exercises in other places were excluded from the CG.

For the EG, physical exercises were offered three to five times a week in the external area of the BHU, guided by a physical education professional, in which the elderly who attended the meetings for at least three months were considered regular. The CG consisted of sedentary elderly people who were regularly monitored in this health service for the control, treatment

and prevention of diseases.

Both groups were also monitored by a multidisciplinary team, composed of nursing, physical therapy and physical education residents.

Data collection took place after the elderly had finished their activities at the BHU; for the EG, the day they attended the unit to perform physical exercises and for the CG, the day they attended the routine care. The interviews were carried out by the assistant researchers - nursing residents, in unoccupied service rooms, ensuring the privacy of the participants, from April to September 2019.

A form was used to collect sociodemographic and clinical data, with information such as: age, sex, self-reported race, occupation and presence of chronic diseases such as Diabetes Mellitus, Systemic Arterial Hypertension and other comorbidities.

To assess anxiety and depression, the Hospital Anxiety and Depression Scale (HADS) was applied, which has 14 items, seven of which refer to the assessment of anxiety (HADS-A) and seven for depression (HADS-D). Each of the items can be scored from zero to three, composing a maximum score of 21 points, following the cutoff points recommended for both subscales: HAD-A – no anxiety, from 0 to 8; anxiety >9; and HAD-D – no depression, from 0 to 8; depression, >9[12].

Initially, the HADS was developed to identify symptoms of anxiety and depression in patients from non-psychiatric clinical hospitals, being later used in other situations, such as in outpatients and healthy individuals[13].

Data were entered by double typing into an Excel spreadsheet and then analyzed using the free PSPP for Windows software, version 1.2.0. The Kolmogorov-Smirnov test was used to test the normality of the sample. Descriptive analysis was performed, with absolute and relative frequency for sociodemographic and clinical data; mean and standard deviation for the variables anxiety and depression; and inferential analysis with the T test for independent samples, in which the value of $p < 0.05$ was considered significant to compare the means of the two groups.

The present study was approved by the Research Ethics Committee, CAAE: 10857119.1.0000.5154, under opinion number 3.290.669/2019.

RESULTS

Twenty-three elderly people were surveyed in the EG and 40 elderly people in the CG, in which a similar sociodemographic characterization was observed between the groups.

The results presented in Table 1 show a predominance of females, aged between 60 and

69 years, white, living with other people, retirees or pensioners and with incomplete elementary education.

Table 1. Sociodemographic characterization of elderly groups according to regular physical exercise. Minas Gerais, Brazil, 2019.

Variables	Exercise Group		Control Group	
	No. (23)	%	No. (40)	%
Sex				
Female	22	95.6	25	62.5
Male	01	4.4	15	37.5
Age Group				
60 to 69 years	13	56.5	24	60.0
70 to 79 years	09	39.1	14	35.0
80 years or more	01	4.4	02	5.0
Self-Declared Race				
White	10	43.5	24	60.0
Mixed	08	34.8	14	35.0
Black	05	21.7	02	5.0
Lives Alone				
Yes	07	30.4	04	10.0
No	16	69.6	36	90.0
Occupation				
Retired/Pensioner	14	60.8	26	65.0
Housewife	05	21.7	08	20.0
Active	04	17.5	06	15.0
Educational Level				
Incomplete Elementary School	11	47.8	28	70.0
Complete Elementary School	07	30.4	05	12.5
Incomplete High School	01	4.4	03	7.5
Complete High School	02	8.7	02	5.0
Complete Higher Education	02	8.7	02	5.0

It is noted in Table 2 that the presence of chronic diseases such as Diabetes Mellitus, Systemic Arterial Hypertension and other comorbidities was higher in the CG than in the EG.

Table 2. Clinical characterization of elderly groups according to regular physical exercise. Minas Gerais, Brazil, 2019.

	Exercise Group		Control Group	
Variables	**No. (23)**	**%**	**No. (40)**	**%**
Diabetes Mellitus	5	21.7	30	75.0
Systemic Arterial Hypertension	16	69.5	30	75.0
Other Comorbidities	12	52.1	24	60.0

Mean anxiety and depression scores were higher in the CG compared to the EG, with a statistically significant difference, as shown in Table 3.

Table 3. Mean, standard deviation and T test of the HADS instrument for the EG and CG. Minas Gerais, Brazil, 2019.

Variables	Exercise Group Mean (standard deviation)	Control Group Mean (standard deviation)	T Test	p
Anxiety	5.43 (3.54)	7.47 (3.95)	2.05	0.045*
Depression	4.17 (2.93)	7.65 (4.26)	3.82	0.000**

*Significant p<0.05. **highly significant p=0,000

DISCUSSION

The sociodemographic data of the present study differ from a research carried out in Portugal[14] in which there was a predominance of males, mean age between 77.1 ± 7.9 years, the presence of comorbidities was 47.4% in the sedentary group (control) and 76.5% in the active group, but it is similar to data from another study[15] in which there was homogeneity of the sociodemographic profile between the groups, with a higher frequency of females (60.0%), but which differs regarding age, where active individuals were 68.3 years old (±5.7) and sedentary individuals were 71.6 years old (±11.4); the active group practiced supervised exercises in a health service, for at least three months, and in the sedentary elderly group, only those who did not perform any type of physical exercise were included.

The results regarding anxiety and depression obtained in this study are similar to research[14] that revealed higher levels of anxiety and/or depression in sedentary elderly people compared to physically active elderly people. More specifically, the sedentary group was 38 times more likely to develop symptoms of anxiety and depression, indicating that the practice of physical activity can perform a certain role in preventing and treating anxiety and depression.

Research[16] carried out in the city of Montes Claros, Minas Gerais, with elderly people who performed physical exercise provided by the educational institution verified the psychological state of elderly practitioners and non-practitioners of physical activity and also showed that the non-active group had a higher rate of depression in relation to the active group, as well as, in another study[17] carried out in the interior of the state of Bahia, a higher frequency of depressive symptoms was observed among non-active elderly people.

A study[18] with depressed elderly people in Italy inserted supervised physical activity as an adjuvant method in the treatment of depression, and as in the present study, there were no differences in sociodemographic characteristics, but it identified an improvement in depressive symptoms, but there was no improvement in anxiety symptoms.

An investigation carried out in the city of Maringá, in the state of Paraná[19], found that participation in regular exercise programs is a way to prevent or reduce the physical and psychological disorders of elderly women, resulting from the aging process, and also a means

of raising levels of self-esteem, and decrease anxiety levels, allowing them to face the changes resulting from the aging process in a healthier way, maintaining quality of life.

A review study[20] found that the practice of regular physical exercise prevents depressive symptoms and reports the fact that an exaggerated routine of physical exercises is not necessary for there to be a beneficial effect in relation to depression, also bringing a protective action on the incidence of depressive symptoms. However, physical training alone is not enough to exempt the elderly from developing depression, being only an additional resource that can help both in the prevention and treatment of depressive symptoms.

Another study[15] classified its group of active individuals as 100% not depressed, while the sedentary group had 50.0% classified as mildly depressed, 25.0% as severely depressed and 25.0% as not depressed, stating physical activity as a factor that favors the reduction of depressive effects.

The investigation between regular physical exercise and depression in elderly individuals carried out at a Senior Citizens Gym located in the city of Rio de Janeiro, in the state of Rio de Janeiro, found that sedentary elderly people had higher mean degrees in all dimensions of depression compared to those who exercised regularly[21].

A review study[22] found a significant relationship in the practice of physical exercise as a non-pharmacological therapy to treat depression, due to the reduction of symptoms and scores, however, exercise should be performed systematically and not sporadically to have potential benefits.

There is also a reduction in the frequency of depressive symptoms from 25.0% to 4.2%, improvement in physical health, vitality, lipid profile and quality of life of the elderly[23].

Other research has identified that physical exercise of any intensity provides protection against future depression, but not anxiety, but relatively modest changes in exercise performance in the population can generate important public mental health benefits and prevent a substantial number of new cases of depression[24].

One study found that self-esteem decreased with age while depressive symptoms increased, and that, as the frequency of physical exercise increases, self-esteem levels become more accentuated, while depression levels decrease, reaffirming that the benefits go beyond the physical body, and that collaborate with the way of coping with life[25] and another[26] reaffirmed the importance of keeping active and the influence of physical activity in coping with depression, expanding social interaction and body stimulation.

Individuals with high levels of anxiety and depression have greater health risks, mainly cardiovascular problems; in this context, the practice of physical exercise predictably improves

cardiovascular health and prognosis, are effective in reducing levels of psychosocial stress, especially those performed in groups, as they also provide social support[27].

The practice of physical exercise has been discussed worldwide, including as a result of SARS-CoV-2 pandemic, known as COVID-19, and a practical experience carried out at the Health Academies by the teams of the Expanded Nucleus in Family Health and Primary Care of the municipality of Arapiraca, in the state of Alagoas, was the elaboration and implementation of protocols of corporal practice/remote physical activity, by physical education professionals, considering the need to maintain the bond and services provided to users of primary health care, during the social distance required by the pandemic[28].

Encouraging increased levels of exercise in any population can be challenging as it requires self-motivation, perseverance and tolerance for discomfort. Therefore, a major challenge is to develop effective methods that promote motivation among people with anxiety, depression or other mental health problems to exercise regularly to achieve the benefits of the practice[29].

Among other obstacles, there is a need to find a suitable place to carry out activities according to the physical structure available in each municipality, thus encouraging the integration of practices within the health academy, sports gym, community center, BHU, among others[30].

CONCLUSION

The present study identified a similarity in the sociodemographic profile between the groups, however, it detected lower scores with a statistically significant difference in anxiety and depression in the elderly who practiced regular physical exercise compared to the sedentary elderly (control).

Thus, for this sample, the results showed that the practice of physical exercise contributed to lower scores of anxiety and depression in the elderly and the benefits arising from the practice of regular physical exercise, which exceeded the biological dimension and brought benefits to the psychosocial dimensions.

Among the limitations of the study, we highlight the small sample and the location of the research being restricted to one BHU, generating the need for new studies with a greater number of participants and different realities and health services. In turn, it brings applied perspectives, even in a specific group on the importance of physical exercise in the elderly.

It was verified the importance of public policies aimed at promoting the health of the population, notably the elderly, in primary care, including regular and systematic physical

exercise practices and the monitoring of individuals by a multidisciplinary team.

REFERENCES

1. Oliveira DV, Campos RS, Antunes MD, Batista RPR, Nascimento Júnior JRA. Efeito de um programa de treinamento funcional sobre a ansiedade e autoestima de idosas. Rev Bras Psicol Esporte [Internet]. 2019 mar [cited in 02 May 2021]; 9(1):1-11. Available from: https://portalrevistas.ucb.br/index.php/RBPE/article/view/9614
2. Melchior LMR. Ansiedade pré-operatória em pacientes cirúrgicos hospitalizados de Goiânia-Go [dissertação]. Goiânia, GO: Faculdade de Enfermagem, Universidade Federal de Goiás; 2017. 92 p. Available from: https://repositorio.bc.ufg.br/tede/handle/tede/7227#preview-link0
3. Oliveira DV, Antunes MD, Oliveira JF. Ansiedade e sua relação com a qualidade de vida em idosos: revisão narrativa. Cinergis [Internet]. 2017 out/dez [cited in 02 Feb 2021]; 18(4):316-22. Available from: https://online.unisc.br/seer/index.php/cinergis/article/view/9951/6927
4. World Health Organization. Depression and Other Common Mental Disorders: Global estimates [Internet]. Geneva: WHO; 2020 [cited in 23 Aug 2021]. 24p. Available from: https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf?sequence=1&isAllowed=y
5. Grandizoli MV, Santos Júnior R, Ibiapina ISM, Garcia VCB. Indicadores de esperança, ansiedade e depressão de pacientes em tratamento oncológico. Arch Health Sci [Internet]. 2017 out [cited in 02 Feb 2021]; 24(3):65-70. DOI: https://doi.org/10.17696/2318-3691.24.3.2017.718
6. Kandola A, Vancampfort D, Herring M, Rebar A, Hallgren M, Firth J, et al. Moving to beat anxiety: epidemiology and therapeutic issues with physical activity for anxiety. Curr Psychiatry Rep. [Internet]. 2018 [cited in 05 Feb 2021]; 20(8): 63. Available from: https://link.springer.com/article/10.1007%2Fs11920-018-0923-x
7. Mah L, Szabuniewicz C, Bow AJ. Can anxiety damage the brain? Curr Opin Psychiat. [Internet]. 2016 Jan[cited in 04 Jan 2021]; 29(1): 56-63. Available from: https://journals.lww.com/co-psychiatry/Fulltext/2016/01000/Can_anxiety_damage_the_brain_.10.aspx
8. Ferreira JVS, Lopes LCC. Atividade física como ferramenta para uma melhor qualidade de vida na terceira idade. In: Anais Colóquio Estadual de Pesquisa Multidisciplinar. IV Colóquio Estadual de Pesquisa Multidisciplinar. II Congresso Nacional de Pesquisa Multidisciplinar [Internet]. Maio 20-21, 2019 [cited in 20 May 2021]. Mineiros, Goiás: UNIFIMES; 2019. p. 1-5. Available from: http://publicacoes.unifimes.edu.br/index.php/coloquio/article/view/662
9. Luan X, Tian X, Zhang H Huang, R Li N, Chen P., et al. Exercise as a prescription for patients with various diseases. J Sport Health Sci. [Internet]. 2019 Sept [cited in 20 Jan 2021]; 8(5):422-41. DOI: doi.org/10.1016/j.jshs.2019.04.002
10. Guedes PCS. Exercício físico e depressão nos idosos [dissertação]. Coimbra, PT: Faculdade de Medicina, Universidade de Coimbra; 2017. 28 p. Available from: https://estudogeral.uc.pt/bitstream/10316/81944/1/Exerc%C3%ADcio%20F%C3%ADsico%20e%20Depress%C3%A3o%20nos%20Idosos%20-%20PedroGuedes.pdf
11. Guimarães TT, Santos HMB, Sanctos RTM. Physical inactivity, chronic diseases, immunity and covid-19. Rev Bras Med Esporte [Internet]. 2020 Sept/Oct [cited in 13 May 2021]; 26(5):378-81. Available from: https://www.scielo.br/scielo.php?pid=S1517-86922020000500378&script=sci_arttext
12. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand. [Internet]. 1983 Jun [cited in 20 Dec 2020]; 67(6):361-70. DOI: 10.1111 / j.1600-0447.1983.tb09716.x
13. Silva CB, Henn CG, Bonacina CM, Bavaresco GHC. Frequência das disfunções temporomandibulares (DTM) e sua relação com a ansiedade e depressão entre usuários que procuraram o Setor de Odontologia em uma Unidade de Saúde. Rev APS [Internet]. 2014 out/dez [cited in 18 Dec 2020]; 17(4):516-22. Available from: https://periodicos.ufjf.br/index.php/aps/article/view/15238

14. Minghelli B, Tomé B, Nunes C, Neves A, Simões C. Comparação dos níveis de ansiedade e depressão entre idosos ativos e sedentários. Rev Psiquiatr Clín (Santiago de Chile) [Internet]. 2013 [cited in 18 Dec 2020]; 40(2):71-6. Available from: http://www.scielo.br/pdf/rpc/v40n2/v40n2a04.pdf
15. Araújo K, Teixeira W, Pinho SMS, Marcelino IM, Filoni E. Avaliação da qualidade de vida e depressão em idosos praticantes ou não de pilates. Revista Saúde [Internet]. 2017 [cited in 21 Dec 2020]; 11(2):50. Available from: http://revistas.ung.br/index.php/saude/article/view/3396/2437
16. Vasconcelos LL, Lopes PGS, Alves MR, Vieira MM, Mendes IHR, Silva BPS, et al. Análise da depressão em idosos praticantes e não praticantes de atividade física sistematizada. RENEF [Internet]. 2018 [cited in 05 Nov 2020]; 8(12):2-11. Available from: https://www.periodicos.unimontes.br/index.php/renef/article/view/536/532
17. Macedo MASS, Oliveira VB, Oliveira AG, Abreu SSS, Duarte SFP, Lima PV. Depressive symptomology in elderly assets and non-assets. Rev Enferm UFPI [Internet]. 2017 Oct/Dec [cited in 13 Nov 2020]; 6(4):33-9. Available from: https://www.ojs.ufpi.br/index.php/reufpi/article/view/6288/pdf
18. Murri MB, Ekkekakis P, Menchetti M, Neviani F, Trevisani F, Tedeschi S, et al. Physical exercise for late-life depression: effects on symptom dimensions and time course. J Affect Disord. [Internet]. 2018 Apr [cited in 15 Nov 2020]; 230:65-70. DOI: https://doi.org/10.1016/j.jad.2018.01.004
19. Oliveira DV, Campos RS, Antunes MD, Batista RPR, Nascimento Júnior JRA. Efeito de um programa de treinamento funcional sobre a ansiedade e autoestima de idosas. Rev Bras Psicol Esporte [Internet]. 2019 mar [cited in 20 Jan 2021]; 9(1):1-11. Available from: https://portalrevistas.ucb.br/index.php/RBPE/article/view/9614
20. Silva DF, Santos JWF. Depressão e nível de atividade física em idosos. Lecturas: Educación Física y Deportes [Internet]. 2019 ago [cited in 20 Jan 2021]; 24(255). Available from: https://www.efdeportes.com/efdeportes/index.php/EFDeportes/article/view/333/816
21. Hernandez JAE & Voser RC. Exercício físico regular e depressão em idosos. Estud Pesqui Psicol. [Internet]. 2019 set/dez [cited in 23 Mar 2021]; 19(3):718-34. Available from: https://www.lume.ufrgs.br/handle/10183/204122
22. Santos, MCB. O exercício físico como auxiliar no tratamento da depressão. Rev Bras Fisiol Exerc. [Internet]. 2019 [cited in 23 Mar 2021]; 18(2):108-15. DOI: https://doi.org/10.33233/rbfe.v18i2.3106
23. Cassiano AN, Silva TS, Nascimento CQ, Wanderley EM, Prado Eduardo S, Santos TMM et al. Efeitos do exercício físico sobre o risco cardiovascular e qualidade de vida em idosos hipertensos. Ciênc. Saúde Colet. [Internet]. 2020 jun [cited in 07 May 2021]; 25(6):2203-12. DOI: https://doi.org/10.1590/1413-81232020256.27832018
24. Harvey SB, Overland S, Hatch, SL, Wessely S, Mykletun A, Hotopf M. Exercise and the prevention of depression: results of the HUNT Cohort Study. Am J Psychiatr. [Internet]. 2018 [cited in 14 May 2021]; 175 (1):28-36. Available from: https://ajp.psychiatryonline.org/doi/10.1176/appi.ajp.2017.16111223
25. Teixeira CM, Nunes FMS, Ribeiro FMS, Arbinaga F, Vasconcelos-Raposo J. Atividade física, autoestima e depressão em idosos. Cuad Psicol Deporte [Internet]. 2016 set [cited in 18 Dec 2021]; 16(3):55-66. Available from: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1578-84232016000300006&lng=es
26. Benedetti TRB, Borges LJ, Petroski EL, Gonçalves LHT. Atividade física e estado de saúde mental de idosos. Rev Saúde Pública [Internet]. 2008 [cited in 18 Dec 2021]; 42(2):302-07. Available from: http://www.scielo.br/pdf/rsp/v42n2/6482.pdf
27. O'Keefe, Evan L, O'Keefe, James H, Lavie, Carl J. Exercise counteracts the cardiotoxicity of psychosocial stress. Mayo Clin Proc. [Internet]. 2019 Sept [cited in 21 May 2021]; 94(9):1852-64. Available from: https://www.mayoclinicproceedings.org/article/S0025-6196(19)30272-1/fulltext
28. Novaes CRMN, Wanderley FAC, Falcão IM, Alves RB, Lima AT, Soares MCB. Protocolo de

atividade física remota para grupos de Academia da Saúde e Estratégia de Saúde da Família. Rev Bras Ativ Fís Saúde [Internet]. 2020 dez [cited in 27 May 2021]; 25:e0167. Available from: https://rbafs.org.br/RBAFS/article/view/14370/11097

29. Kandola A, Stubbs B. Exercise and Anxiety. Adv Exp Med Biol. [Internet]. 2020 [cited in 27 May 2021]; 1228:345-52. Available from: https://pesquisa.bvsalud.org/portal/resource/pt/mdl-32342469

30. BVS APS Atenção Primária em Saúde. Núcleo de Telessaúde Santa Catarina. Saúde do Idoso. Quais práticas corporais podem ser promovidas na atenção básica/ atenção primária à saúde visando a prevenção e promoção da saúde do idoso? [Internet]. São Paulo, SP: BIREME, OPS, OMS; 2016. Available from: https://aps.bvs.br/aps/quais-praticas-corporais-podem-ser-promovidas-na-atencao-basica-atencao-primaria-a-saude-visando-a-prevencao-e-promocao-da-saude-do-idoso/

Associated Publisher: Rafael Gomes Ditterich.

Conflict of Interest: The authors declared that there is no conflict of interest.

Financing: none.

CONTRIBUTIONS

Mariana Rosa Ribeiro Cardoso and **Adriana Cristina Nicolussi** contributed to the design, collection and analysis of data, writing and revision. **Grace de Sousa Lopes** and **Bruna Ferreira Silva** collaborated in the design, collection and analysis of the data. **Joyce Mara Gabriel Duarte** participated in the design, writing and revision.

How to cite this article (Vancouver)

Cardoso MRR, Lopes GS, Silva BF, Duarte JMG, Nicolussi AC. Anxiety and depression in the elderly according to regular physical exercise. Rev Fam, Ciclos Vida Saúde Contexto Soc. [Internet]. 2022 [cited in *insert day, month and year of access*]; 10(3):515-25. Available from: *insert access link*. DOI: *insert DOI link.*

How to cite this article (ABNT)

CARDOSO, M. R. R.; LOPES, G. S.; SILVA, B. F.; DUARTE, J. M. G.; NICOLUSSI, A. C. Anxiety and depression in the elderly according to regular physical exercise. **Rev Fam, Ciclos Vida Saúde Contexto Soc.**, Uberaba, MG, v. 10, n. 3, p. 515-525, 2022. DOI: *inserir link do DOI.* Available from: *insert access link*. Access in: *insert day, month and year of access*.

How to cite this article (APA)

Cardoso, M.R.R., Lopes, G.S., Silva, B.F., Duarte, J.M.G., & Nicolussi, A.C. (2022). Anxiety and depression in the elderly according to regular physical exercise. *Rev Fam, Ciclos Vida Saúde Contexto Soc.*, *10*(3), 515-525. Retrieved in *insert day, month and year of access* from *insert access link*. DOI: *insert DOI link*.