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• Benefits of therapeutic Yoga in reducing stress in the elderly



Abstract: - Therapeutic yoga or yogatherapy, has great benefits for people, since its practice allows to improve mood, emotional balance, quality of sleep, among others. Social isolation as a result of the pandemic caused by COV-SARS-2, led to cases of family violence increasing considerably, affecting people's mental health and increasing stress levels. The objective of the article was to determine the benefits of therapeutic Yoga in the reduction of stress in the elderly of the Center for the Elderly of Ica. The study was of quantitative approach, applied type, application level, quasi-experimental design, there was a sample consisting of the 28 older adults of the CAM, divided into an experimental group (14) and a control group (14). Characterization variables such as age, sex, marital status, cohabitation and others were analyzed; a questionnaire consisting of 20 reagents with Likert scale was used, as a result a p-value of 0.000 was obtained in the post-test test, demonstrating significant differences between the experimental group and the control group. It is concluded that the application of therapeutic yoga contributes to the reduction of stress in older adults.

Keywords: Yogatherapy; stress; adult; old age. (Source: VHL Psychology)

I. INTRODUCTION

The health crisis that was experienced in 2020 due to the pandemic caused by Cov-Sars-2, led governments, worldwide, in order to counteract this pandemic, to decide to make mandatory social isolation effective, a situation that significantly increased cases of family violence, depression, anxiety, stress and others, that, without a doubt, affected people's mental health, precisely one of those problems is stress, which is one of the main problems caused by the pandemic. [1]In a 2020 study on the impact of the pandemic on people's mental health, it was concluded that Covid-19 had a negative impact on the entire population, specifically the most vulnerable[2]. In Peru, through the publication of Supreme Law No. 044-2020-PCM, a state of emergency was declared throughout the Peruvian territory and mandatory social isolation was taken as a measure[3]. The Ministry of Health of Peru, issued an informative in which it mentions that the mental health of people have been affected by the pandemic, increasing stress levels due to episodes such as the loss of a loved one, fears of contracting the disease, uncertainty about the health crisis, among others, which, significantly, generated an impact on the emotional, social and psychological well-being of people, only in the city of Metropolitan Lima 52.2% of the population suffered from moderate stress levels with a tendency to severe, in addition to this, 54.6% of Limeños had difficulty falling asleep[4]. The CAM Santiago, has a population of 28 older adults, whose ages range from 60 to more than 80 years, as a result of social isolation, this group of people have shown marked levels of stress, because of the

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situation experienced by COVID-19, referring losses of family and friends, the fear of being a highly vulnerable group to the disease and stress, anxiety and depression that the disease has generated. Given this situation, the present study aims to contribute to counteract this problem through a proposal such as therapeutic yoga and its benefits for the reduction of stress of the elderly, considering that, many times the fear of the elderly is reflected in their daily life, by various factors, some of them related to their mood; This is where the Yoga technique appears as an innovative method to improve emotional stability, through relaxation. This research will help improve the attention, mood and concentration of the elderly, thus contributing positively to their state and mental health.

II. BACKGROUND, MOTIVATION AND OBJECTIVE

Among the previous studies that correspond to the study, we have: Hernández (2020), who conducted a study with the purpose of describing in a general way the impact of COVID-19 on people's mental health, consulted 46 bibliographic sources, finally citing 25 of them and concluding that Covid-19 has a negative impact on mental health, Especially in this vulnerable population, it also mentions that the factors that can aggravate people's mental health are the uncertainty inherent in coping with this disease and the social isolation to which the population is subjected[2]. In Cuba, research by Escobar *et al.* (2019), aimed to expose the myths, realities, advantages, disadvantages and effectiveness criteria of yoga practice, in decreasing the stress levels of practitioners. A review of 129 studies, from the last 5 years, was carried out, consulting databases such as MEDLINE, OVID, PubMed and Scielo and concluding that the studies support the efficiency of the practice of yoga, for the reduction of stress levels in people who practice it[5]. In the study conducted by Ching *et al.*, (2023), they conducted a study to determine the effectiveness of the yoga therapy chair in improving functional status in older adults with osteoarthritis, the study sample was made up of 85 women, with an intervention group (43) and a comparison group (42), physical functional capacity was evaluated, Body mass index and physiological indicators, participants were shown to have significantly high levels of functional fitness and activities of daily living after the yoga chair therapy, concluding that the yoga chair was effective for improving functional status and daily living activity scores in elderly women living with knee osteoarthritis[6]. Garry *et al.*, (2017), conducted research on yoga to improve physical function and health-related quality of life in older adults, this pilot trial had a sample of 52 women with average ages of 4.8 years, divided into two groups, the first being the experimental group with a total of 25 participants who were given an educational brochure about the physical activities to be performed and also They were invited to 10 yoga sessions, during the period of 12 weeks, on the other hand the control group, consisting of 27 participants who were given an educational brochure. It is concluded that the proposal of adapted yoga is feasible and beneficial in improving mental and social well-being, as well as aspects of physical function in inactive older adults[7]. Likewise, there is the study conducted by Gothe and McAuley (2016), there was a sample of 118 older adults, with an average age of 62 years, who participated in a controlled trial of 8 weeks, attending three times a week for one hour in each session, the proposal of hatha yoga was applied to a group of 61 participants and another group of 57 members who performed stretching-strengthening exercises, The results obtained suggest that the practice of yoga is effective as well as stretching and strengthening exercises for the improvement of physical condition, it is concluded that the practice of yoga is beneficial as the realization of stretching-strengthening exercises in sedentary people[8]. Tiedemann *et al.*, (2013), performed a yoga program to improve balance and mobility in older adults, the study sample was made up of 54 inhabitants of the community, who ranged in an average age of 68 years, the study sample was made up of a number of 27 participants, who participated in a 4-month program, With an attendance of 2 times a week, the proposal focused on standing postures and was given an educational brochure of fall prevention, for the control group, which was made up of 27 participants, only the educational brochure was entered, as general results it has that the intervention group improved significantly and comparison of the control group, With regard to the tests performed for balance on one foot, the sit and stand test, the 4-meter walk and standing on one leg with eyes closed, it is concluded that the trial demonstrates the benefits on balance, mobility and viability of iyengar yoga in older adults[9]. In the research conducted by Shin (2021), on the effect of yoga on the physical practice of the elderly, the purpose was to analyze the effects of yoga on the physical condition of the elderly, of a total of 656 articles 12 were included in the meta-analysis, it is concluded that the practice of yoga showed moderately positive effect on muscle strength, mobility, lower body flexibility and balance, but did not have a significant effect on cardiorespiratory endurance and upper body flexibility, in addition, it was shown that older adults aged between 60 and 70 years who practiced yoga for 9 to 12 weeks, had a positive effect on their physical condition[10]. Bhattacharyya *et al.* (2021), conducted

research to demonstrate the effects of yoga-related mind-body therapies on cognitive function in older adults, 12 studies were available that included a sample of 912 participants of which 73.9% were women, of whom 239 with and 673 without cognitive impairment, studies employed a wide variety of yoga. With a common approach based on meditative postural exercises, beneficial effects on memory, executive function and also on attention and processing speed were obtained, it is concluded that the mind-body intervention related to yoga in older adults, are constituted as an alternative, feasible, effective and safe practice for the maintenance of cognitive functions of older adults[11]. Baklouti, *et al.* (2022), conducted a cross-sectional study on the effects of hatha yoga on the cognitive functions of the elderly, the main objective was to investigate the effects of hatha yoga on the cognitive functions of the elderly, and had two research groups, it was concluded that hatha yoga in the long term generate better cognitive skills in those who practice it. Unlike those who made up the control group, it is necessary to be able to examine more physiological and psychological variables to highlight the correlation between yoga and cognitive performance[12]. In the study conducted by Farhang *et al.*, (2022), the purpose of the study was to evaluate the effectiveness of a mindfulness intervention based on the practice of yoga (YBM), an individual randomized controlled trial (RCT) was carried out, as results of the study it has been possible to adapt and design the intervention protocol, the evaluation has allowed to examine the effects of a mindfulness intervention based on yoga that allows to improve the functions cognitive and physical of older adults diagnosed with mild cognitive impairment[13]. Zhang *et al.*, (2018), conducted research to demonstrate mind-body effects on cognitive performance of the elderly: a systematic review and meta-analysis. The sample was made up of 19 RCTs, containing a total sample of 2539 elderly of which 67.3% were women, the results showed that mind-body exercises with respect to the control intervention showed significant benefits in cognitive performance, as well as global cognition, executive functions, memory, language and learning of the elderly. We conclude that mind-body exercise will become a safe and effective intervention for improving cognitive functions in people aged 60 years and over [14]. Finally, in the research conducted by Schmid *et al.*, (2010), conducted a study to determine if the fear of falling (FoF) and balance improved after 12 weeks of yoga intervention in older adults, the study sample was made up of older adults forming a sample of 14 participants, aged over 65 years. The results obtained indicate that the application of yoga improves balance allowing to reduce the risk of falls in older adults[15].

The research questions raised from the analysis of the problem are: What are the benefits of therapeutic Yoga in reducing stress levels in the elderly?, as specific problems raised are: How the practice of yogaterapia improves breathing technique in the elderly?, How does the practice of yogatherapy improve the mood of the elderly? and How the practice of yogaterapia improves memory retention of the elderly?, the objectives of the research were: Demonstrate the benefits of therapeutic Yoga in reducing stress levels in the elderly, as specific objectives are: Demonstrate how the practice of yogatherapy improves breathing technique in the elderly, Demonstrate how the practice of Yogatherapy improves the mood of the elderly and demonstrate how the practice of Yogaterapia improves the memory retention of the elderly

Frame of reference.

Yogaterapia.

The definition of yoga comes from the Sanskrit language Yug which means "union" or "linity", that is, union with the whole, it is considered as a Hindu discipline, whose objective is to achieve the yoga state, that is, one in which man has recovered his true nature and feels satisfied with it. All variants of yoga have the same purpose, which is to help people find full happiness, both physically, mentally and spiritually[16]. As for the benefits of yoga, traditional doctors recommend the technique of yoga, because its practice has great benefits in promoting the health of patients, contributing significantly to their quality of life. For Escobar *et al.* (2019), yoga is defined as a set of millenary techniques, which are based on meditation, relaxation and deep breathing, it is a technique that comes from the Hindu culture, which seeks to provide greater conditioning of mental and physical control of the people who practice it[5]. On the benefits of yoga in the elderly, this practice allows to reach an old age with adequate health, which not only includes a correct diet, but also performed adequate mental and physical exercises [17].

Stress.

Stress is defined as a feeling of extreme tension, when people are subjected to high pressures, due to daily

activities, which exceed the ability of a body to adapt, which can cause or cause diseases in those who suffer from it. Stress is caused by a stimulus, which is generated by a stressor, the stimulus is the activity or objective that needs to be met to lower the biological and psychological response generated by the stressor[18]. For the World Health Organization (2010), stress is defined as a set of physiological responses that prepare the body to generate an action or responses, that is, that, in a certain situation, the body launches certain physiological and psychological processes that allow it to respond to these demands[19].

There is no precise definition of stress, this is because, being a syndrome, there are other diseases that show the same symptoms, so there is no precise conceptualization of stress, precisely because different diseases present the same symptoms, being able to presume, erroneously, that it is caused by stress[20].

Among the causes of stress are considered physiological, which is generated by increasing the internal tension of the body, having as manifestations emotional and physical reactions; the psychological, which has to do with the emotional and intellectual part, interpersonal relationships manifest themselves in a conflictive and defective way; and finally, the social ones, which have to do with the adaptability by which the subject shows difficulty in adapting to the changes he experiences, both at work and in daily life, and that lead to a picture of stress.

III. CONTRIBUTION STATEMENT/METHODS

Study that corresponds to the quantitative approach, of applied type, since its purpose is to be able to change a reality or phenomena through the execution of activities such as the practice of therapeutic Yoga, is of application level, corresponding to experimental studies and with a typology of quasi-experimental design and longitudinal cut.

The study population was made up of the entire population of older adults (28) living in the Center for the Elderly (CAM) in the city of Ica, Peru, the study sample was selected using non-randomized criteria and convenience, having two study groups, the first consisting of 14 older adults (experimental group) and the second, also made up of 14 older adults (control group). The conduct of the study complied with the ethical criteria for the treatment and handling of information, as well as having the authorization and consent of the study units. The data collection technique used was the survey and as an instrument the questionnaire, this instrument whose purpose was to measure stress levels in older adults, both the experimental group and the control group, was made up of 20 reagents or items, with a Likert type rating scale (4 options), which allowed evaluating the three areas of stress study, as they were: Increased cortisol levels, lowered tensions and decreased physiological reactions. The categories used to determine stress levels are: Normal stress, moderate stress, obvious stress and marked stress, with a score of [20-35], [36-50], [51-65] and [66-80] respectively. The instrument was adapted, and submitted to the process of validity by expert judgment or delphi trial, through professionals who had the criteria required to perform this type of procedure, being specialists, with extensive experience in the professional field and in the development of studies related to the line of research on the proposed theme. The presentation of statistical results, both descriptive and inferential, was carried out through the use of SPSS Statistics software (IBM), version 25.

IV. RESULTS

The results shown corresponding to the characterization variables of the experimental group, they show that, in terms of sex, 89.3% are women, 46.4% are aged between 71 years and older, 71.4% have a technical / higher level, 46.4% of the participants are widowers, finally, 35.7% expressed that they live with their siblings

Table 1. Comparison of results obtained in the control group.

Dimensions	PRE-TEST		POST-TEST	
	Prom	h(i)%	Prom.	h(i)%
Increased cortisol levels	8.93	74%	10.57	88%
Lower tensions	36.43	83%	34.50	78%
Decreased physiological reactions	20.64	86%	19.21	80%
Stress	66.00	83%	64.29	80%

In the pretest and post-test evaluation of the control group, a marked stress level of 83% and 80% respectively was presented, the stress levels of the group that was not favored with the application of the proposal are almost similar in both tests, although they show a minimal reduction (-3%).

Table 2. Comparison of results obtained in the experimental group.

Dimensions	PRE-TEST		POST-TEST	
	Prom	h(i)%	Prom.	h(i)%
Increased cortisol levels	8.57	67%	4.57	39%
Lower tensions	29.43	73%	17.21	41%
Decreased physiological reactions	17.50	69%	9.86	40%
Stress	55.00	71%	31.64	38%

The stress levels of the experimental group in the pretest test was 71%, indicating an evident stress level, reducing, in the post-test evaluation to 38% (normal), the results shown show that the reduction of stress is significant in the post-test evaluation, compared to the result obtained in the post-test evaluation.

Table 3. Normality test.

		Statistical	GI	Herself.
		Pre-test	Experimental group	
	Control group		.95114	.577
Post-test	Experimental group		.79614	.004
	Control group		.80014	.005

In the process of reliability of the instruments has been used the Shapiro-Wilk test, the results obtained in the p-value, which is higher than the level of significance, show that the data do not have a normal distribution, therefore, it is decided to make use of the non-parametric test U of Mann Whitney, for the comparison of the results obtained.

Table 4. Mann Whitney U test in pretest and post test evaluation.

Group		N	Average range	Sum of ranges
Pre-test	Experimental group	14	14.36	201.00
	Control group	14	14.64	205.00
Post-test	Experimental group	14	7.79	109.00
	Control group	14	21.21	297.00
Total		28		

Test statistics ^a			
	Pre-test	Post-test	
Mann-Whitney University	96.000	4.000	
W de Wilcoxon	201.000	109.000	
With	-.092	-4.326	
Asymptotic sig. (bilateral)	.927	.000	
Exact significance [2*(sig. unilateral)]	.946 ^b	.000 ^b	

The table shows the results of the Mann Whitney U test for two independent samples, where the p-value of the

post test is less than the significance level (0.000), demonstrating that there are significant differences between the experimental group and the control group, demonstrating the benefits of therapeutic yoga in reducing stress levels in the elderly.

V. DISCUSSIONS

The results achieved in the study allow to demonstrate the benefits of therapeutic Yoga in the reduction of stress levels in the elderly, achieving a decrease of up to 33% in the post-test test of the experimental group, however, the results obtained in the control group have not been significant, since without having benefited from the application of the proposal, stress levels decreased by 3%, as achieved in the post-test evaluation.

The results achieved in the study at the inferential level, after having used the non-parametric Mann Whitney U test for independent samples, show that in the pre-test test of the experimental and control group a p-value of 0.927 was obtained, which is greater than the significance value, with this it is interpreted that there are no differences between the results of the pre-test test of both groups, that is, before the implementation of the proposal, both the experimental group and the control group start the study under similar conditions; in the post-test a p-value of 0.000 was obtained, which is lower than the standard value (0.05), demonstrating that there are significant differences between the experimental and control groups, thereby demonstrating that the application of the Yogaterapia program contributes to the reduction of stress, obtaining a significant reduction between the pre-test and post-test test of the experimental group. The results obtained in the study correspond to those achieved in the research carried out by Sorrentino (2018), which aimed to determine the influence of psychological stress and its effects at the physiological level, as a measure to alleviate stress, the study concluded that, yoga is effective in the management of stress and physical and psychological illness of people, also promoting a healthy lifestyle. There is also Calderón (2016), who conducted a study in Peru, with the aim of describing the changes exerted by the practice of yoga in the elderly, the author concluded that, the practice of yoga is a favorable practice for the elderly, increasing their lung capacity, decreasing heart rate and temperature, In addition to improvements in problems such as urinary incontinence, increased mobility, strength in the lower extremities and balance of Alzheimer's. Finally, it corresponds to the results obtained in the study conducted by Mamani and Mamani (2014), whose objective was to determine the effectiveness of yoga on the level of stress in older adults, concluding that yoga workshops significantly decreased the stress of older adults, obtaining a $T_c = 11.7294 > T_t = 1.96$, for which the alternative hypothesis was accepted. It is worth mentioning that, in terms of the limitations presented by the study, there is little availability of study applications that develop a proposal of yoga therapy for stress reduction in a sample similar to that of the study (older adults), another aspect that complicated the realization of the study was social isolation, because few sessions of the program were developed. It is important to mention that the members of the control group must be benefited with the realization of the proposal, in order to contribute to the reduction of stress in this group. The study allowed to demonstrate that the application of a yogatherapy program allows to reduce stress levels in people, in the specific chaos of the study sample, is beneficial for older adults who, as a result of the pandemic produced by Covid-19, have been affected in their mental health and well-being because of the context in which they find themselves. It is necessary that more studies on this proposal be carried out and implemented in other realities and with other age groups, such as women and children, who have increased their stress levels due to social isolation.

CONCLUSION

It has been determined that the application of the yogaterapia program contributes to the reduction of stress in the elderly of the CAM Santiago Ica, 2020, this is confirmed by the Mann Whitney U statistical test, having obtained a p-value of 0.000, (in the post-test test of the experimental group), which is lower than the significance value (0.05) and a Z value of -4.326, which is less than -1.96, therefore, the alternative hypothesis is accepted and the null hypothesis is rejected. In this way, the general objective proposed in the study is verified.

The application of the yogatherapy program significantly improves breathing in the elderly of the CAM Santiago Ica, 2020, this is confirmed by the Mann Whitney U statistical test, having obtained a p-value of 0.000, (in the post-test test of the experimental group), which is lower than the significance value (0.05) and a Z-value of -4.323 which is less than -1.96, Therefore, the alternative hypothesis is accepted and the null hypothesis is rejected.

The application of the yogatherapy program, substantially improves the mood in the elderly of the CAM Santiago Ica, 2020, this is confirmed by the Mann Whitney U statistical test, having obtained a p-value of 0.000 (in the post-test test of the experimental group), which is lower than the significance value (0.05) and a Z value of -4.333, which is less than -1.96, therefore, the alternative hypothesis is accepted and the null hypothesis is rejected.

The application of the yogatherapy program, effectively improves memory in the elderly of the CAM Santiago Ica, 2020, this is confirmed by the Mann Whitney U statistical test, having obtained a p-value of 0.000, (in the post-test test of the experimental group), which is lower than the significance value (0.05) and a Z-value of -4.155 lower than -1.96, Therefore, the alternative hypothesis is accepted and the null hypothesis is rejected.

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