ADAPTACIÓN DE LA ESTRATEGIA "PASOS POR LA SALUD" DE PREVENIMSS PARA LA ACTIVACIÓN FÍSICA DE ADULTOS Y ADULTOS MAYORES

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Resumen

El objetivo fue mostrar la adaptación de una estrategia de activación física del Instituto Mexicano del Seguro Social (IMSS), a un grupo de 27 adultos y adultos mayores (74% mujeres y 26% varones) con edades de 53 a 71 años (M=62.4; DT=5.3); Se evaluó mediante una cédula sociodemográfica y de salud, un inventario de síntomas y una batería de Actividad Física -AF- (Méndez, 2008). Se valoró el tamaño del efecto de la estrategia en el desempeño físico mediante la d de Cohen, se obtuvieron cambios grandes (d=0.868-d=0.997) en síntomas, equilibrio, fuerza de brazos, flexibilidad y velocidad; mientras que se observaron cambios medianos (d =0.440-d=0.650) en el tamaño del efecto en salud y fuerza de piernas, agilidad y resistencia. La conclusión se dirige a la ineludible necesidad de adaptación de programas sanitarios para su efectividad y el efecto positivo de la estrategia en los participantes sobre su salud, síntomas y aptitud física.

Palabras Clave: Prevenimss. Pasos por la salud. Adulto mayor. Activación física.

Abstract

The objective was to show the implementation of a strategy for physical. activation in Mexican Institute of Social Security (IMSS-of its acronym in spanish: *Instituto Mexicano del Seguro Social*-), for 27 adults and older adults (74% women and 26% men) aged 53-71 (M=62.4, DT=5.3); evaluated through a sociodemographic and health card, an inventory of symptoms and a test of Physical Activity -AF- (Méndez, 2008). The magnitude of the strategy's effect on physical performance was evaluated using Cohen's d, getting big changes (d=0.868 - d=0.997) in symptoms, balance, arm strength, flexibility and speed; medium changes were observed (d= 0.440-d=0.650) in the effect on health, legs strength, agility and endurance. The conclusion focuses the imperative need to adapt health programs for their effectiveness and the positive effect of the strategy on the participants' health, symptoms and physical ability.

Keywords: Prevenimss. Steps for health. Older adult. Physical activation

Resumo

O objetivo foi demonstrar a adaptação de uma estratégia de ativação física do Instituto Mexicano de Segurança Social (IMSS) para um grupo de 27 adultos e idosos (74% mulheres e 26% homens) com idade de 53 a 71 anos (M=62.4; DT=5.3). Um inventário de sintomas e uma bateria de Atividade Física (Méndez, 2008) foram avaliados mediante uma ficha sociodemográfica e de saúde. O tamanho do efeito da estratégia no desempenho físico foi analisado mediante a D de Cohen. Grandes mudanças foram obtidas em sintomas, equilíbrio, força nos braços, flexibilidade e velocidade (D=0.868-D=0.997). No entanto, mudanças medianas foram observadas no efeito na saúde, força nas pernas, agilidade e resistência (D=0.440-D=0.650). Conclui-se que é necessário uma adaptação dos programas sanitários para sua efetividade e o efeito positivo da estratégia nos participantes sobre a saúde deles, sintomas e aptitude física.

Palavras-Chave: Passos pela Saúde. Idoso. Ativação física

Abbrevations:

BMI: Body Mass Index

WHI: waist-hip index

SBP: Systolic Blood Pressure

DBP: Diastolic Blood Pressure

Descriptive measures of health indicators in the ptretest - posttest and follow-up in the 27 participants.

Introduction

Physical Activity (PA) is any body movement produced by the skeletal muscles that require an expenditure of energy. Since several decades ago it has been observed that physical inactivity is a risk factor and for almost two decades OMS (2004), has identified it as the fourth factor related to global mortality. In Mexico, people over 18 years, only 48.4% of men and 35.6% of women perform some type of activity (INEGI, 2018). PA has become one of the most important health promotion strategies, not only because it improves the physical health of people (cardiac, circulatory, cerebral health, blood glucose level, blood lipid process, among others); but for all the additional psychological benefits it provides (improves mood, helps reduces depression and states of anxiety, reduces insomnia, improves cognitive processes, among others (OMS, 2004; Serrano, Lera & Espino, 2013; Stubb, Vancampfort & Rosenbaum, 2016; Stubb, et al., 2017; Ijaz, Davies, Williams, Kessler, Lewis & Wiles, 2018; Belvederi, et al., 2019; Kolovos, Van-Tulder, Cuijpers, Prigent, Chevreul & Riper, 2017); Likewise, it has been proven that PA improves the resistance, elasticity, condition, strength and balance of people. Among the groups that are most benefited with this strategy are patients who live with diseases such as diabetes, hypertension, overweight and obesity (González, 2006 & IMSS, 2019).

In the Mexican population 15% suffer from type II diabetes (FMD, 2019), 25.5% have hypertension, two thirds have problems of overweight or obesity, diseases that are related to the main causes of death in our country (ENSANUT, 2016). In order to prevent its prevalence, the Mexican Social Security Institute (IMSS) has made it a priority to improve the lifestyles of the population, incorporating a healthy diet, physical activation, simple water consumption and attend periodically to preventive studies, promoted and offered to beneficiaries through the PREVENIMSS institutional program. This program includes a serie of health strategies, such as "Steps for Health," which last three months, in which people must attend with a community physical activator, three times a week, to walk 2500 steps in a circuit, making intervals for isometric movements of upper and lower extremities, in order to: 1. Improve the life quality of the people, 2. To diminish the health risks related to the sedentarism, 3. Initiate the people in the physical activation, 4. Decrease the costs in public health for the attention of the patients. The effectiveness evaluation of the strategy consists of indicators such as blood pressure, blood glucose, body mass index -BMI-, waist hip ratio -WHR- and triglycerides (IMSS, 2019).

However, the strategy has not had the expected success, because patients often refuse to attend, arguing that: "they are too old", "that it has no longer sense" and that "PA is for young people"; so that the health team asked a group of health psychologists, their intervention. Given this fact, three phases were designed, the first consisted of trying to eliminate the stigma that prevails in modern societies, because unfortunately, the image of the elderly has been created and promoted as sedentary, ill, unproductive , clumsy, with poor health and life quality, without motivation, who only expect to die isolated or institutionalized. In order to eliminate these erroneous ideas, the perspective of health psychology was reconsidered, which considers elderly

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people as potentially healthy productive, active, motivated and involving to a social environment, as long as this gives them the right opportunities for an optimal functional development (Martínez, Mitchell & Aguirre, 2013). This area of Psychology as well as some research, found in the literature of the last decades gives a perspective where this population is recognized with great potential, as long as they are given the necessary conditions (Rikli, & Jones, 1999 & 2001; Reyes, Castillo, Dávalos, Armando & Barranco, 2001, Gallegos, 2006, Serrano, et al., 2013). As a second phase, it was decided to adapt the strategy, generating three modules for its implementation: the first one for giving information and education; second one, the program adaptation of the population, and the third that includes the operation of the program for three months and its evaluation; The third phase included a six-months follow up, each phase was carried out with the support of specialists in the health and sports area, in order to achieve the objective of this work, which is to show the results of the strategy adaptation "Steps for Health "to older adults.

Method

Participants

145 patients were invited, of whom 27 attended representing 19% of the convened population. 74% were women and 26% were men, aged 53 to 71 years (M = 62.4, SD = 5.3); comorbidity of diabetes and hypertension (with a diagnosis time M = 8 years, SD = 4), all overweight, psychopathologies (comorbidity of depression and anxiety with previous diagnostics of a psychiatry and with follow-up treatment by their family doctor); all authorized for the practice of PA by their family doctor of the Family Medicine Unit (FMU) of the IMSS. Among the professionals who participated, there was a Family Doctor, an Educator in Diabetes, and a Physical Education teacher endorsed by the National Commission of Physical Culture and Sport as a physical activator (CONADE, 2014).

Environment

The program was carried out in two facilities: the first one was a multipurpose room in the FMU of the IMSS, where part of the educational diffusion and evaluation were carried out; the second were the sports facilities (athletic track and green areas) of a higher education school of the UNAM, where the PA program was developed.

Tools

A sociodemographic and health data card was designed specifically, the participants were classified according to the social class of the Hollingshead index (Hollingshead, 1975), which is based on two indicators (occupation and academic degree), grouping the variable on a scale of five points: the lowest class: level I and the highest: level V, observing that patients were distributed mainly in two of the five options (class I-II: 100%). A scale of perceived symptoms was designed with 9 items to evaluate the presence of pain or muscular rigidity in upper and lower limbs, back and fatigue (with a rating of one to five, maximum intensity in 5 and 1 for the lowest degree of intensity). In order to identify depressive and anxiety symptoms was used The Anxiety and Depression Scale (HADS): Elaborated by Zigmond and Snaith (1983) and validated by Barriguete, Pérez, Vega and Chávez (2017), it consists of 14 items, divided into two scales: depression (7 items) and anxiety (7 items). The answers are of Likert kind, and go from 0 to 3, it is rated from 0 to 21 points, both for anxiety scores, and depression is considered normal from zero to seven, doubtful from eight to ten and clinical problem from eleven onwards. Patients evaluate the feelings they have experienced during the last week. The items consider psychological symptoms, omitting the somatics to differentiate those that are related to the suffering of physical diseases. For the Mexican population, López, et al. (2001) report a Cronbach's alpha of .86, and for internal validity data it reports an intra-class correlation of .94. Also was used The PA scale for older adults, consisting of the following concepts,: Static balance (staying 60 seconds standing on one foot), leg strength (standing up and sitting on a chair repeatedly for 30 seconds), strength in arms (lifting flexing the arm with dumbbells repeatedly), flexibility in legs and hips (Sitting stretching the legs touching the toes), flexibility in arms (placing the arms with one elbow pointing up and the other down touching the fingers of the hands on the back), agility (repeatedly sitting, getting up and walking 2,45 mts and sitting down again), speed (walking quickly 30 meters), aerobic endurance (walking 6 minutes) (Meléndez, 2008).

Process

Phase 1

Demystification about old age: the importance of performing supervised physical activity with progressive complexity was explained, information on healthy and active aging was provided. The sessions lasted between 20 and 30 minutes, general information on nutritional aspects, hydration, on footwear and clothing suitable for PA was indicated.

Likewise, the survey of the 5 reasons to attend and not to attend PA was applied, before and after the session of demystification of the PA, to evaluate the impact of the information provided.

When the patients agreed to participate, they were invited to another session where the sociodemographic card, the scales of symptoms, anxiety, depression were applied and the data from their health booklets were taken to collect health indicators (BMI, index waist hip ICC, blood glucose, blood pressure); finally, an appointment was scheduled with their family doctors to receive the assessment and authorization to participate in the "Steps for Health" program. Subsequently they signed the informed acceptance.

Phase 2

The adaptation of the strategy was carried out: through three modules:

Module 1: Educational and diffusion: consisted of specific information on chronic conditions such as diabetes and hypertension and PA, it was reported on the benefits of PA in old age; Module 2: The sessions were structured for three months (two weeks with a duration of 40 minutes that were divided into the activities of 2000 steps walk, 4 weeks with a variable duration of 40-60 minutes and 2500 to 3000 steps and 6 weeks with walk of 3500 steps or more -in all the weeks there were intervals of movements of legs and arms with increase in repetitions-) to improve balance, strength, flexibility, agility, speed and endurance. Playful activities were also added at the beginning and at the end of each session to warm up and relax the muscles; In module 3 the activity was carried out with its evaluations at the beginning and at the end of the program. In addition, the participants met every month in a recreational activity, in which the physical activity monitor did not participate so that a greater cohesion of the group was given and the group leaders began to be outlined. This constitutes the first step for self-management of the group, a term used in the strategy "Steps for health" to refer to the independence of the group to continue themselves with physical activity, without depending on a monitor assigned by the IMSS.

Phase 3

Follow-up was carried out after 6 months, performing the evaluations again.

Statistical analysis: a descriptive and effect size analysis was carried out using Cohen's D in related samples in an ABA design with a 6-month follow-up. To facilitate the interpretation of the values of the *Cohen* d, the values were transformed into Z scores (Coe and Merino, 2003; Ledesma, Macbeth, and Cortada de Kohan, 2008; Bologna, 2014).

Results

From the adaptation of the program "Steps to Health" and the psychoeducational sessions, it was observed that the patients showed great interest and expressed feeling identified with the information that was provided, since of the 145 patients captured only 25 % was able to recognize the benefits of physical activity done previously –zumba dancing-; 75% had given up previous attempts to exercise; some because the activity was very strong for their age (30%), others because of foot injuries and because of feeling decompensated glucose (40%), and the rest due to excessive fatigue (5%). 100% of the population found motivating to be considered by the IMSS to open a group of physical activation promotion directed exactly to their needs, with a specialized monitor in older adults. The invitation to the group was opened to the community to capture a larger sample. 145 people were invited. Among the reasons for attending it was difficult for them to find five reasons so they only informed at the beginning that the only motivation would be to improve their health. Among the 5 reasons not to attend, 80% said they did not have time or energy; 12% said that "I had never done it" and "now less, because they are old", 8% left the room for lack of interest. At the end of the session the reasons for attending were again asked and 100% said that for improving health (control of diabetes, hypertension and overweight) and for feeling better, 15% to get rid of depression, 32% to get rid of anxiety. To reduce their weight and improve their image 70%. Of the 145 patients attended, 27 representing 19% of the population summoned. The attendance of the participants remained constant in 74% of the attendees both during the program and in the follow-up to 6 months of the end of the program. The rest did not attend on more than two occasions and only one participant abandoned in the last two sessions. Regarding the rigidity and pain scale, it can be seen in Figure 1, that in the initial assessment between 66% and 100% they show pain and rigidity in the upper, lower extremities and the back. Through the application of HADS it was found that 20% showed clinical depression (values higher than 11) and 71% clinical anxiety. In the post-program evaluation, in terms of pain and rigidity, there are considerably lower percentages between 34% and 3% and in depression and anxiety, lower percentages are also were observed (values between 12% for anxiety and 2% for depression) (Figure 1).

The patients' reports at the end of the four months of PA were homogeneous, 100% of them felt more full of energy, and perceived that they improved their mood. In a more detailed analysis, the results of the HADS show in Table 1 that patients in normal ranges without depression went from 60% in the initial
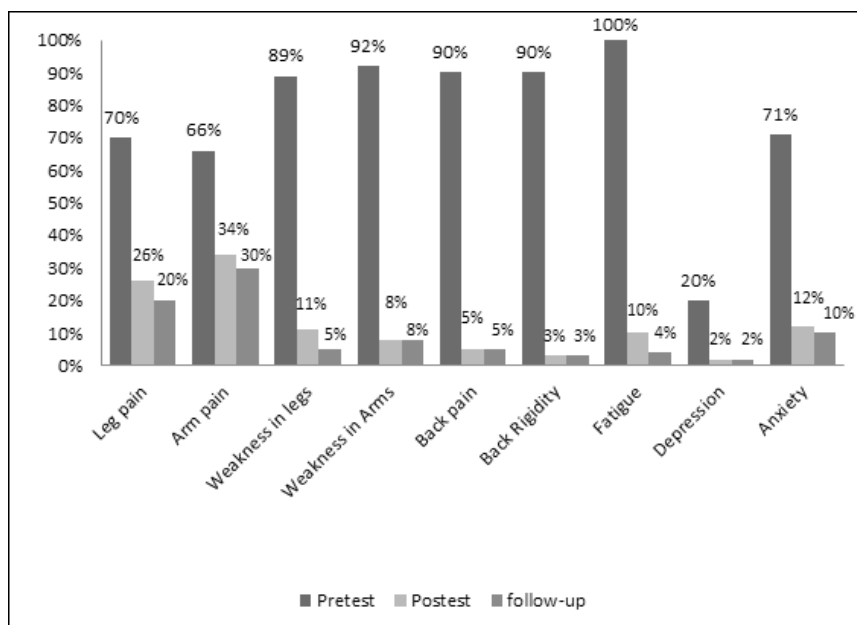
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Figure 1: Percentages of the presence of pain, lack of strength, rigidity, fatigue, depression and anxiety in the group of 27 patients who participated in the Steps for Health strategy in the postest prestest and in the follow-up of the program.

Table 1: Results of the HADS scale in the 27 participants.

Depression				Anxiety		
	Normal	**Doubtful**	**Clinical problem**	**Normal**	**Doubtful**	**Clinical problem**
Pretest	60%	20%	20%	8%	21%	71%
Postest	80%	18%	2%	12%	76%	12%
Follow up	96%	2%	2%	80%	10%	10%
Score obtained by the 27 participants in depression and anxiety, before the program, after and in the follow-up.						

evaluation to 96% in the follow-up, in the same way, with respect to the anxiety, the patients increased in normal ranges going from 8% in the initial evaluation to 80% in the follow-up (Table 1).

The progress of the patients exceeded the expectations of the weekly schedule during the four months, with which activities, repetitions were added and the complexity of isometric movements was increased to promote greater motor coordination and competition in 95% of participants. Also playful strategies were added in track and field. Unlike the programs carried out by the IMSS, those that kept the participants motivated, interested, committed. As can be seen in table 2, Regarding the changes in health indicators in the IMC, when calculating the *Cohen* d, it is observed that after participating in the program the average decreases by 67%, which implies a small effect size and when calculating the average of the postest and follow-up shows a similar change, since only 59% decreases the average. Regarding changes in the ICC, it is observed that the average of the postest is 78% less than pretest, while the mean follow-up decreased to the postest average by 91%, which indicates a medium effect size. With reference to the TAS, the average of the postest decreased by 65%, and from the postest to the follow-up by 73%, which indicates that the size of the effect was small. Regarding TAD, the mean of the postest was 72% lower than the pretest and the postest at 71%, indicating a medium and small effect size respectively. Regarding fasting glucose, the postest mean decreased by 95% at the end of the program average, which is considered a median effect size; On the other hand, the average follow-up exceeds the average of the end of the program by 99% and this data indicates a large effect size (Table 2).

Likewise, to analyze the size of the effect in each sub-test of the PA test by calculating the Cohen d, in table 3 it can be seen that in static equilibrium, the participants improved between the pretest and the postest in a 100% which shows a large effect size and between the postest and the follow-up is observed 63% which shows a small effect size. In legs strength, an 88% improvement was observed between the pretest and the postest, while between postest and follow-up the change was maintained at 50%, which means a large effect size and no change in the postest and follow-up. The strength in the arms of the participants improved by 99% between the pretest and the postest which indicates a large effect size, as for the improvement between the postest and the follow-up was 74% which means a small effect size. Legs flexibility showed an improvement of 99% that remained unchanged for follow-up, however the

improvement achieved in the postest was maintained in this phase. Regarding arm flexibility between the pretest and postest, it improved by 100% and by 75% from the postest to the follow-up indicating a large change. Regarding the agility of the participants between the pretest and posttest the improvement was 83% and even greater 99% between postest and follow-up. On the resistance of the patients, a 95% improvement was observed between the pretest and postest, which was maintained and with a small increase of 55% in the follow-up. Regarding the condition between pretest and postest and between the follow-up, it was a large size, respectively, of 100% and 97%. On the other hand, it was observed that there was resistance to self-management at the end of the four months of monitoring and to consider continuing to attend them alone without the monitor. However, through group work, they were encouraged to identify their potential leaders by deciding to choose two of the people from the assistants, who continued to be monitors at the time of the evaluation in the follow-up (Table 3).

Size of the effect of the Adaptation of the steps to health strategy in the eight subcategories of the Battery of Functional Condition for older adults.

Conclusions

Physical activation in this group of adults and older adults confirmed the transcendence of the personalization of the programs, the importance of knowledge of the needs of the population, the value of adapting to the initial skills of the group with the vision of empowering them and the need for a team sensitive to the motivations and expectations of people (Zaragoza, Serrano and Generelo, 2004). It also revealed characteristics of this age group, regarding the need of people to feel belonging to a group. Work with older adults showed the demystification of their age, because many of them at the beginning of the program resisted participating by saying that PA is only for young people, currently, they refer to their group as "an injection of life". Likewise, changes in the treatment effect were found satisfactory. Even when some changes were small, they were positive or changes in the health and emotional state indicators were maintained, as well as for aspects related to their physical performance, limb strength, resistance, elasticity, flexibility and balance, agility and condition - (ENSANUT, 2016), The whole group perceived improvement in their mood (anxiety and depression decreased), because they found in the group a social environment that they no longer had -because most of them were retired-, they were motivated to plan more activities in the days that they

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Table 2: Cohen's d values and corresponding Z score in health indicators.

N=27 health indicators	Pretest M(SD)	Postest M(SD)	Follow up M(SD)	Pretest - postest D Cohen	Z	Postest- Follow up d Cohen	Z
BMI (kg/m2)	31.4(5.7)	29.2(4.2)	28(5.9)	.44	.67	.23	.59
WHI(cm)	.96(.09)	.90(.06)	.81(.07)	.78	.78	1.38	.91
SBP (mm Hg)	140(15.5)	135(10)	130(5)	.38	.65	.63	.73
DBP(mm Hg)	95(12)	89(8)	85(6)	.59	.72	.56	.71
Glucose (Mg/Dl)	120(8)	110(3)	100(4)	1.66	.95	2.82	.99

Table 3: Size of the effect in each sub-test of the AF test by calculating the Cohen d and its transformation to Z scores.

N=27 Dimensions Test	Pretest M(SD)	Postest M(SD)	Follow up M(SD)	Pretest- postest d Cohen	Z	Postest- Follow up d Cohen	Z
Static equilibrium	39(5)	56(3)	54(8)	4.12	1	.33	.63
Leg´s strength	12(5)	17(3)	17(2)	1.21	.88	0	.50
Arm's strength	10(3)	19(4)	16(5)	2.54	.99	.66	.74
Leg's flexibility	25(7)	15(4)	15(3)	3.51	.99	0	.50
Arm's flexibility	29(6)	5(2)	28(3)	5.37	1	.7	.75
Agility	18(4)	13(6)	11(4)	.98	.83	2.7	.99
Physical resistance (minutes when traveling 30 meters)	3.6(1)	2.1(.7)	1.9(2)	1.74	.95	.13	.55
Condition (travel 6 min at full speed)	250(16)	369(9)	390(10)	9.17	1	2.2	.97

did not attend the program, because they have more energy to undertake new activities. Finally, it was observed the importance of preparing and informing people before having a PA plan (feeding before exercise, hydration, use of footwear and appropriate clothing, etc.); It was found that people regardless of their age based on information and a program adapted to their abilities achieve to have important advances in terms of physical parameters (OMS, 2004) and emotional (when decreasing depression and anxiety) as found in the literatura (Serrano, et al., 2013; Stubb, et al., 2016; Stubb, et al., 2017; Ijaz, et al., 2018; Belverdi, 2019), finding in the group of physical activation a source of positive and stimulating social contact, which considerably improves the quality of life of the elderly.

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