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CLÍNICA

Perceived barriers and physical activity level in older adults from Aguascalientes, Ags.: un studio transversal

Barreras percibidas y nivel de actividad física en adultos mayores de Aguascalientes, Ags.: Un estudio transversal

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Keywords: Elderly; older adults; physical activity; barriers
Palabras clave: Adultos mayores; actividad física; barreras

ABSTRACT

Introduction. Mexico is in demographic transition being more than 10% of its population older adults who have a high frequency of non-communicable diseases. The objective was to know the relationship between perceived barriers and physical activity level in older adults from Aguascalientes in Mexico.

Material and methods. The present study is cross-sectional, analytic, and observational.150 older adults registered in the Family Integral Development System from Aguascalientes State were included at random, who accepted to participate by signing a consent form. A questionnaire to detect perceived barriers as well as an international physical activity questionnaire was applied.

Statistical analysis. Z for two proportions, p-value and odds ratio, 95% confidence interval were calculated, between external and internal perceived barriers and low physical activity level in older adults from the sample.

Results. In reference to the sample, 71.3% were between 60 and 70 years old; 72% were female, 78% had low physical activity level. The lack of information about physical activity benefits is a barrier in relation to low physical activity (Z=2.36, p=0.02, OR=2.97 95%CI=1.28 to 6.90); the lack of support from their family is another barrier in relation to their low physical activity (Z=2.91, p=0.003, OR=3.82, 95%CI=161 to 9.10); another barrier was the lack of places (such as health centers and gyms for older adults) to perform physical activity (Z=4.2, p<0.05, OR=5.8, 95%CI=2.5 to 13.3).

Conclusion. The nursing designing programs to perform physical activity in older adults should take into account these perceived barriers.

RESUMEN

Introducción. México está en transición demográfica con más del 10% de su población, siendo adultos mayores, quienes tienen elevada prevalencia de enfermedades no transmisibles. El objetivo fue conocer la relación entre las barreras percibidas y el nivel de actividad física en adultos mayores de Aguascalientes, Ags.

Materiales y métodos. Es un estudio transversal, observacional, analítico. 150 adultos mayores registrados en el Sistema de Desarrollo Integral Familiar de Aguascalientes, que firmaron el consentimiento, fueron incluidos. Se aplicaron los cuestionarios de barreras percibidas y el internacional de actividad física.

Análisis estadístico. Z para dos proporciones, valor de p, Razón de Momios e intervalos de confianza al 95% fueron calculados, entre barreras percibidas externas e internas y el nivel de actividad física que realizaban los adultos mayores de la muestra.

Resultados. La muestra estuvo integrada por adultos mayores con edad entre los 60 y 70 años; 72% fueron mujeres, 78% tenían bajo nivel de actividad física. La falta de información acerca de los beneficios de la actividad física es una barrera para tener mejor nivel de actividad física (Z=2.36, p=0.02, RM=2.97 IC95%=1.28 a 6.90); la falta de apoyo de las familias es otra barrera para la actividad física (Z=2.91, p=0.003, RM=3.82, IC95%=161 a 9.10); también fue una barrera la falta de espacios para realizar actividad física, tales como centros de salud y gimnasios para adultos mayores (Z=4.2, p<0.05, RM=5.8, IC95=2.5 a 13.3).

Conclusión. El diseño de programas de enfermería para realizar actividad física en adultos mayors, deberá tomar en cuenta las barreras percibidas.

INTRODUCTION

Currently, humans enjoy an increased life expectancy due to advances in science and health technology. The United Nations (UN) states that in the next 20 years the senior population in Latin America will increase 4.5 > %[1]. This increase affects and will continue to affect Mexico.

Mexico has a current population of 106.7 million people and according to projections from the National Population Council (CONAPO) there are 9,490,250 elderly, representing 8.8%[2,3]. The state of Aguascalientes has a population of 1,141, 946 inhabitants and the elderly population is 7.1%[4].

An unhealthy lifestyle with low physical activity contributes to overweight and obesity, high risk factors for chronic diseases such as diabetes, heart disease and cancer. There is also a direct relationship between the level of physical activity (PA) in childhood and the (PA) adulthood[5.]

The elderly who do not perform (PA) are high risk candidates for chronic diseases and those are already ill can worsen or present complications, becoming an issue of great impact for them[6].

A low PA or sedentary behavior may be due to internal or external barriers, Dr. Nola J. Pender Health Promotion model , says that internal or external perceived barriers are obstacles that prevent the elderly from adopting a healthy lifestyle, the external barriers are environmental stimuli and significant interactions, while internal barriers are physical and emotional aspects[7].

A conscientious review of articles and other texts related to Physical Activity revealed that PA studies focus on the benefits to its implementation, but there were no findings on the causes of low or no Physical Activity in the elderly in Mexico.

The objective of this study is to identify the relationship between perceived internal and external barriers, with the low level of PA in the elderly of Aguascalientes.

MATERIALS AND METHODS

It is a cross-sectional and analytical study.`

It was approved by the Research and Bioethics Committee of the Division of Health Sciences and Engineering Celaya - Salvatierra Campus of the University of Guanajuato.

All of the senior population registered in the Aguascalientes D.I.F. (State offices for Public Family Care)were invited to participate but only those who signed the written consent form participated. The participants answered the short version of the International Physical Activity Questionnaire (IPAQ) in Spanish[8, 9] which measures de level of PA.

The short version of this questionnaire covers three types specific types of activity within the prior seven days to the application of the questionnaire: 1- waking (number of days the activity was performed and minutes per day), 2- activities of moderate intensity (number of days the activity was performed and minutes per day), vigorous activity (number of days the activity was performed and minutes per day) [10].

To obtain the level of Physical activity, for walking activities, the IPAQ uses 3.3 MET and the result is multiplied by the minutes and days of this activity. For moderate intensity activities 4 MET is used and the result is multiplied by the minutes and days of this activity; for vigorous activities 8 MET is use and then multiplied by the minutes and days of this activity. Participants who obtained less than 600 MET-minutes/weeks were categorized as having low PA; those with a result of 600 to 1499 MET-minutes/weeks were categorized with a moderate PA and those with 1500 MT and above were categorized as having a high level of PA.[9]

Afterwards, the Perceived Internal and External Barriers Questionnaire by Sechrist et als. [11] was applied. This questionnaire includes 14 questions that identify the perceived barriers or obstacles preventing from doing physical activity. Each statement is rated by choosing one of four options: strongly disagree, disagree, agree and strongly agree. In order to identify if the item was a barrier for PA, answers were classified into YES / NO. YES when the answer was “strongly agree” or “agree” and NO when the answer was “disagree” or “strongly disagree”. A 0.8 intra-observer and a 0.95 inter-observer Kappa was obtained for Mexican population.

Weight in Kilograms was also measured using a scale with altimeter. The subjects of the study were weighed and measured on the scale without shoes and standing up. The height was measured in meters. The Body Mass Index (BMI) was calculated dividing the weight in Kgs. by the height in square meters. An appropriate BMI is 24.9 or bellow, overweight is between 25 and 29.9, obese is 30 or above[12].

Sample size: Expecting and 80% of low Physical Activity (PA) with the support of family members and a 20% of low (PA) without the support of family members, the minimum sample size was 15 elderly people in each group with 95% precision and 80% power. Even though, we will evaluate all the elderly that decided to participate (Epidat 3.1, 2006, Xunta de Galicia and Organización Panamericana de la Salud).

Statistical analysis: descriptive statistics was used as variables of the sample. To prove the hypothesis, the Z test for two independent proportions and p value were used for each barrier and low level f Physical activity; The significant statistical p value was set t 0.05.

To learn the effect of perceived barriers on the level of physical activity, the Odds ratio (OR) was calculated, as well as 95% confidence intervals in order to achieve the OR value on the elderly. For statistical analysis STATA 10.0® (Stata Corporation, College Station, Texas, USA) was used.

RESULTS

The trial sample was made up of 150 elderly people registered at the Aguascalientes State D.I.F. (State offices for Public Family care). The number of women in the sample was predominant, 108 women (72%). 107 (71.3%) women re between 60 and 70 years old; 106 (70.7%) were married, 102 (68%) were housewives; 84 (56%) women were overweigh (TABLE I); 117 (78%) had a low level of physical activity and only 33 (22%) women engaged in moderate physical activity.

Table I. Socio-demographic variables in the elderly, Aguascalientes, Ags. Mexico 2010 (n=150)

Variables	N	%
Gender		
Female	108	72.0
Male	42	28.0
Age group		
60 – 70	107	71.3
71 – 80	40	26.7
81 – 90	3	2.0
Marital Status		
Single	11	7.4
Married	106	70.7
Widowed	24	16.0
Divorced	5	3.3
Separated	2	1.3
Living together	2	1.3
Occupation		
Housewife	102	68.0
Retired	7	4.7
Security guard	6	4.0
Merchant	3	2.0
Other	32	21.3
Overweight/obesity status		
Adequate (BMI 24.9 or less)	42	28.0

Overweight (BMI 25.0 – 29.9)	84	56.0
Obesity (BMI 30.0 or higher)	24	16.0

Source: Perceived Internal and External Barriers Questionnaire

The majority of elderly people like exercise, but no difference between the proportions and the low level of PA (p>0.05) were found. The fatigue that PA causes is an internal barrier, since the difference of the proportion of elderly with a low level of PA (with or without fatigue) is significant (p<0.05) and there is an important effect of this fatigue on the low level of PA (OR=4.55). Obviously if the elderly person has a physical lesion no PA can be performed (p=0.058). There is no difference between preferring to read o watch television and a low level of physical activity (p>0.05). If the elderly person does not know that PA is a priority, it is an internal barrier for engaging n physical activity (p<0.05).The lack of knowledge about the type of PA to practice is also an internal barrier (p<0.05) (Table II).

Table II. Internal barriers and level of physical activity in the elderly of Aguascalientes, Mexico, 2010. (n=150)

Internal Barriers	Level of physical activity		Total
	Low n %	Moderate n %	n %
A liking of physical activity	Z=-0.04 p=0.97	OR=0.69 95%CI=0.13 to 3.74	
No		2 28.58	7 100.0
Yes	5 71.42	31 21.68	143
	112 78.32		100.0
Fatigue due to PA	Z=2.56 p=0.01	OR=4.55 95%CI=2.02 to 10.24	
Yes	44 91.66	4 8.3	48 100.0
No	73 71.56	29 28.44	102
			100.0
Physical lesion*	Z=1.92		
Yes	p=0.054	0 0	16
No	16 100.00	33 24.63	100.0
	101 5.37		134
			100.0
Prefers watching TV or reading*	Z=0.084 p=0.93	0 0	1 100.0
Si	1 100.00	33 22.15	149
No	116 77.85		100.0
Considers physical activity a priority at his/her age *	Z=8.57 p=0.03		
No	19 100.00	0 0	19
Yes	98 74.80	33 25.20	100.0
			131
			100.0
Knows what physical activity to engage in	Z=8.57 p<0.05	OR=25.1 95%CI=8.5 to 73.4	
No	111 96.52	14 12.18	125

Yes	6 24.00	19 76.00	100.0 25 100.0

Source: Perceived Internal and External Barriers Questionnaire IPAQ
* Odds Ratio and 95%confidence intervals could not be calculated since one of the cells has a value of 0.

The cost of PA is not a barrier for 95% of the trial group and it is not related to the low level of PA (p>0.05). For the majority of the participants of this study, the time spent doing PA is not a barrier (p>0.05). The existence or lack of neighborhood programs for Physical activity bears n influence on low level of PA (p<<0.05). However, the use of sports clothing is a barrier to engaging in PA (p<<0.05). Living alone does not help the elderly person to engage in Physical Activity; but on the other hand, the family member of the elderly person can be a barrier if they don´t support them (p<0.05). The absence of appropriate nearby for PA is yet another barrier (p<0.05); if the elderly person does not receive information about the benefits of doing PA, this too becomes a barrier (p<0.05) (Table III).

Table III. External barriers and level of physical activity in the elderly of Aguascalientes, Mexico, 2010. (n=150)

External Barriers	Level of physical activity		Total n %
	Low n %	Moderate n %	
Cost of Physical activity Yes No	Z=-0.04 p=0.66 4 80.00 113 77.93	OR=0.09 95%CI=0.10 to 8.18 1 20.00 32 22.07	 5 100.0 145 100.0
Physical activity is a waste of time* Yes No	Z=1.74 p=0.08 115 77.70 2 100.00	 33 22.30 0 0	 148 100.0 2 100.0
There are physical activity programs in my neighborhood* No Yes	Z=0.23 p=0.82 114 77.55 3 100.00	 33 22.45 0 0	 147 100.0 3 100.0
Sports Clothing No Yes	Z=3.64 p=0.0003 82 88.17 35 61.41	OR=4.69 95%CI=2.05 to 10.69 11 11.83 22 38.59	 93 100.0 57 100.0
Lives alone	Z=0.19 p=0.8	OR=0.76 95%CI=0.24 to 2.42	

Yes No	18 99	81.81 77.34	4 29	18.19 22.66	22 100.0 128 100.0
Family supports the practice of physical activity No Yes	Z=2.91 p=0.003 100 83.33 17	 56.66	OR=3.82 95%CI=1.61 to 9.10 20 13	 16.67 43.34	 120 100.0 30 100.0
Places to engage in physical activity nearby No Yes	Z=4.2 p<0.05 90 88.23 27 56.25	 	OR=5.8 95%CI=2.5 to 13.3 12 21	 11.77 43.75	 102 100.0 48 100.0

Source: Perceived Internal and External Barriers Questionnaire IPAQ
* Odds Ratio and 95%confidence intervals could not be calculated since one of the cells has a value of 0.

DISCUSSION

The sample for the study was obtained by inviting the senior population registered in the Aguascalientes D.I.F. (State offices for Public Family Care) and there may be a bias in the selection. It is possible that the selection may be biased but the same methodology in the application of the questionnaires was used in order to minimize this possible bas.

An 80% of low physical activity without the support of family members and 20% with the support of the family were the expected results. The study shows an 83.33% n the case of the elderly without the support of the family and 56.66% with the support of the family. This proves that the proportion of low level of physical activity were statistically different when having or not having the support of family members (Table III).

Mora and Col., found that PA in the elderly increase their autonomy and social support and that barriers such as fatigue or support of the family have an impact on the level of PA[13]. The same results were fund in Aguascalientes (Table II and III).

Lago[14] reported that the elderly that participate in PA programs increase their quality of life and lower the severity of their illnesses. The results of the study in question corroborates those results since not having a place nearby to engage in Pa was one of the perceived barriers (Table III).

Important aspects must be taken into account in order to establish an action plan that will contribute and strengthen healthy conduct, thus designing model for the encouragement of health living.

Dergance and col., studied Mexican-American and European –American elderly populations and found that the main barriers for engaging n PA were lack of interest, lack of company, not having fun while practicing PA and lack of knowledge about the benefits of PA. They also showed that these barriers were more common in the

European-American elderly population than in the Mexican-American elderly population[15]. In the elderly population of Aguascalientes, the perceived barriers were fatigue, physical incapacity, not considering PA as a priority, lack of knowledge about the kinds of PA that can be practiced, not having appropriate sports clothing, lack of family support and the lack of nearby places to engage in PA. These are similar barriers to those reported by Derengance and Col.

Trosat and Col., reported that lack of time, tiredness, weakness, fear of falling and injuries, inconvenient weather, lack of places to engage in PA and couples that do not do exercise were a big negative influence that contribute to not engaging in PA[16].

A relation between internal and external perceived barriers b the elderly population and a low level of physical activity can be observed. This increases the vulnerability to illness and its complications.

Booth and col.[17], reported that the more frequent perceived barriers towards physical activity among Australians are insufficient time, lack of motivation, injuries or a deficient health. In the elderly population of Aguascalientes, injuries and lack of support from the family were identified as perceived barriers.

The results of this study show that there are internal and external barriers in the elderly population that keep them from engaging in moderate or vigorous physical activity. Family support and physical fatigue were among the internal barriers that had a stronger relation with a low level of physical activity. The lack of nearby areas for PA, specific physical activity programs for the elderly, lack of adequate clothing and lack of knowledge about the benefits of physical activities were found as external barriers.
The study demonstrates that there is a relation between some internal and external barriers and the level of physical activity in the elderly population.

CONCLUSIONS

There are perceived barriers by the elderly population that are related to their level of physical activity. These barriers must be taken into account when designing programs to increase the level of physical activity among the elderly.

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