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## ORIGINAL

### **GENDER, AGE AND SOCIO-OCCUPATIONAL INEQUALITIES. ACTIVA-MURCIA PHYSICAL ACTIVITY PROGRAM**

### **DESIGUALDADES DE GÉNERO, EDAD Y SITUACIÓN SOCIOLABORAL. PROGRAMA DE ACTIVIDAD FISICA ACTIVA-MURCIA**

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#### **ABSTRACT**

The objective of this study was to describe sex and age differential features in a Physical Activity Program (ACTIVA-Murcia) from a gender perspective. A descriptive study was carried out by secondary analysis in 411 participants from two health centres in Murcia. 62.3% were women and 71.8% were aged between 45 and 64. Regarding men, 57.8% worked and practised physical activity with a median of 1,939.5 METs / week. As for women, 37.4% worked and exercised a median of 1,386.0 METs / week. Non-attendance to a session due to illness was the reason in 53.4% cases for women and 30.4% for men. Professionals should consider these differences in the promotion of physical activity.

**KEYWORDS:** Physical Activity; Gender and Health; Women's Health; Age Groups; Socio-economic factors; Primary Health care; Health Promotion; Health Behaviour.

#### **RESUMEN**

El objetivo de este estudio fue describir las características diferenciales por sexo y edad en un Programa de actividad física (ACTIVA-Murcia) desde una perspectiva de género. Se realizó un estudio descriptivo mediante análisis secundario en 411 participantes de dos centros de salud de Murcia. El 62,3% fueron mujeres y el 71,8% tenían entre 45 y 64 años. Entre los hombres, el 57,8% estaban laboralmente activos y tenían una actividad física cuya mediana fue de 1.939,5 METs/semanales. Entre las mujeres, el 37,4% estaban activas laboralmente y realizaban una mediana de 1.386,0 METs/semanales. El motivo de ausencia a alguna sesión por enfermedad fue del 53,4% para las mujeres y el 30,4% para los hombres. Los profesionales deben considerar estas diferencias en la promoción de actividad física.

**PALABRAS CLAVE:** Actividad Física; Género y Salud; Salud de las Mujeres; Grupos de Edad; Factores socioeconómicos; Atención Primaria de Salud; Promoción de la Salud; Comportamiento de Salud.

## 1. INTRODUCTION

According to the World Health Organization (WHO), physical inactivity is the fourth risk factor for mortality worldwide<sup>(1)</sup>. Despite "Global Recommendations on Physical Activity for Health" being widely known (at least 150 minutes of moderate-intensity aerobic physical activity throughout the week)<sup>(2)</sup>, there are considerable differences in this habit depending on sex and age groups. Inactivity is higher in women than in men and among older people compared to younger people<sup>(3-6)</sup>.

Spain ranked in 2012 among the least active European countries, Global Recommendations being followed only by 42.7% women and 45.9% men<sup>(7)</sup>. With regard to sedentariness, the 2016 Annual Report of the National Health System placed Murcia as the second most sedentary Autonomous Community, with 44.5% of the population aged over 15 living a sedentary lifestyle, being 50.3% women and 38.6% men<sup>(8)</sup>.

Currently, Physical Activity (PA) as a health social behaviour is fundamentally linked to gender and not so much to biological sex, which is also not modifiable<sup>(9,10)</sup>. Although access to PA by women and men is theoretically the same, there are some differences that lead to inequalities which increase health risks in women's health<sup>(10,11)</sup>.

Gender is a sociocultural construct that determines the meaning of being a woman or a man by influencing behaviours, roles, social relationships, divisions of powers, and opportunities among others. It is a social determinant that interacts with other determinants such as place of residence, age, and employment, leading to health inequalities<sup>(12,13)</sup>.

The employment situation is an indicator of gender inequality according to national and international organizations<sup>(12,14)</sup>. This is the result of the sexual division of labour which assigns the remunerated, public and leadership positions to men and the unpaid, domestic and care positions to women. This entails a poorer health condition in women due to the limited opportunities for self-care and access to beneficial activities<sup>(15)</sup>.

The gender perspective is oriented to identify differences, inequalities and similarities in health between women and men in their social, economic and cultural context to promote health equity<sup>(9)</sup>. It introduces a critical analysis of the different determinants that build gender identities and that affect men and women differently in their connection with PA for example. First, the analysis of data disaggregated by sex is required<sup>(16)</sup>, as well as reciprocally considering social position among others; inequalities in participation in PA programs; the sexual division of labour or socio-occupational situation; and gender socialisation<sup>(16-18)</sup>.

If the promotion of PA does not take into account the social determinants that interact with gender, then the different needs, behaviours and health responses of women and men and the factors that allow the achievement of optimum health condition can neither be taken into account<sup>(19,20)</sup>. Therefore, health inequities are perpetuated, that is, the differences between both sexes which are unnecessary, avoidable, and unfair<sup>(21)</sup>.

In 2004, the World Health Assembly approved the World Strategy of the World Health Organization on Diet, Physical Activity and Health. Its objective was to promote and protect health by adopting measures in order to reduce morbidity and mortality associated with an unhealthy diet and lack of PA<sup>(22)</sup>. Based on the aforementioned World Strategy is the National Strategy NAOS (Nutrition, Physical Activity and Prevention of Obesity)<sup>(23)</sup>, in which the ACTIVA-Murcia Program is classified<sup>(24)</sup>.

In the design of this public community program, aimed at promoting PA by the prescription of therapeutic physical exercise, the gender perspective was not taken into account, a circumstance that justifies the secondary analysis in this research.

## **2. OBJECTIVE**

The main objective of this study was to identify gender inequalities in health among the participants in the Program<sup>(9)</sup>. Specifically:

- 2.1. Describe the differential features in the different sex and age groups on the following variables; employment situation, PA levels, involvement, and reasons for non-attendance at the ACTIVA-Murcia Program.
- 2.2. Relate the differences between the variables with the construction of gender.

## **3. MATERIAL AND METHODS**

- 3.1. Scope. Population from Molina de Segura in Murcia who were regular users of two Primary Care Centres in the city.
- 3.2. Design. Descriptive study of patients from a prospective cohort on which a secondary analysis with a gender perspective was performed. A primary database of participants in the ACTIVA-Murcia Program was used, analysing it according to sex and age groups.
- 3.3. Description of the ACTIVA-Murcia Program<sup>(24)</sup>. It includes people of both sexes with cardiovascular risk factors (Diabetes, Arterial Hypertension, Dyslipidemia, Obesity and Smokers), who do not practise regularly scheduled physical activity (two or more times a week), with no medical contraindication to exercise and to whom PA is prescribed by Medical and Nursing professionals from Primary Care Centres. It consists of exercising flexibility, strength and resistance three days a week for an hour each

morning during 10 weeks in municipal sports facilities, with a total of 30 sessions. It is directed by instructors with a Degree in PA and Sports. The local governments collaborate offering the Program their municipal sport facilities and PA monitors, who adapt the exercises to the physical condition and develop alternative circuits in which the intensity increases as the Program advances.

### 3.4. Research period:

3.4.1. Development of the Program by 742 patients in different groups during two years: from January 2011 to June 2012.

3.4.2. Data collection in primary database: from January 2011 to January 2013.

3.4.3. Secondary analysis: planning of analysis by sex and age groups from the primary database of the ACTIVA-Murcia Program, selection of variables, verification and interpretation of data with a gender perspective<sup>(9)</sup>: From November 2017 to January 2018.

3.5. Selection of participants. Among the 742 people who initiated the Program, those who concluded more than 2/3 of the total sessions and who completed the International Physical Activity Questionnaire short form (IPAQ-SF) were selected. These two Primary Care Centres represent 100% of the total Medical Cards in the town.

3.6. Sample. 411 people, 256 women (62.3%) and 155 men (37.7%).

### Study variables

3.6.1. Central stratification variables. The descriptive analysis was based on the explanatory variables sex and age, dividing age into three groups by intervals (adults aged 19-44; middle age from 45 to 64; and seniors  $\geq 65$ ) hence representing the heterogeneity of the sample and distinguishing the different realities<sup>(9)</sup>. In this secondary analysis, the recommendations of the "Guide to the introduction of a gender perspective into health research"<sup>(9)</sup> have been adopted, standing out the following: the analysis of sex-disaggregated data; identification of sex as a central and transversal variable in the analysis and in the results presentation; and identification of differences, inequalities and similarities between women and men based on other social determinants such as age groups and socio-occupational situation<sup>(9)</sup>.

3.6.2. Socio-demographic variable. It was used as a social determinant for the analysis with a gender perspective according to recommendation nº 29 in the "Guide to the introduction of a gender perspective into health research"<sup>(9)</sup>, the employment situation, active and unemployed, included in the Program assessment notebook.

3.6.3. Level of PA. The IPAQ-SF was used to analyse the level of PA and sedentariness in the previous seven days. It was self-completed by the participants and computerised by the ACTIVA monitors.

The IPAQ-SF (Annex I) enables the calculation of intensity and time dedicated to PA in a week after answering seven items, registering the activity in four different intensity levels: vigorous, moderate, light and sitting<sup>(25)</sup>.

It obtains an estimate of the week PA analysing the minutes of activity and the energy expenditure in MET metabolic equivalents. A MET is defined as the amount of energy expenditure while sitting at rest. One MET is equivalent to 1kcal per kg body weight per hour<sup>(26)</sup>. The IPAQ shows an adequate Spearman test-retest reliability with a value of 0.8-0.96<sup>(26)</sup>.

3.6.4. Reasons for non-attendance. The reasons for non-attendance were collected in the assessment notebook according to a list of options, allowing the user to select more than one option.

3.7. Methods of analysis. Chi-square contrast test or Fisher's exact test were used to compare categorical variables with two categories. Due to the lack of normality of the quantitative variables, the Mann-Withney U test was used to compare variables with two categories and the Kruskal-Wallis test for variables with more than two categories. To determine the influence of sex, age and employment situation on METs, an ANOVA model was created with the three factors and their interactions. The SPSS 24.0 statistical program was used for all the analyses.

3.8. Ethical considerations. Protocol adopted by the Clinical Research Ethics Committee of the Virgen de la Arrixaca Hospital in Murcia.

## 4. RESULTS

The Primary Care Centres referred 742 people to the Program. The final sample was made up of the 411 people who had an affirmative record after completing the IPAQ-SF. Most of them were women (62.3%), aged 45-64 (71.8%), and unemployed (54.4%) (Table 1).

<b>Table 1.</b> Description of the sample in socio-demographic variables			
	M (SD)	n (%)	<i>p</i>
<b>Sex</b>			
Female		256 (62.3)	0.71
Male		155 (37.7)	
<b>Age (years)</b>	51.8 (8.6)		
19-44		90 (21.8)	-
45-64		296 (71.8)	
≥65		26 (6.3)	
<b>Employment situation</b>			
Active		94 (45.6)	-
Unemployed		112 (54.4)	
M = Mean; SD = Standard Deviation; <i>p</i> = statistical significance			

4.1. Socio-demographic variables and employment situation (Table 2)

By age groups, the most numerous one was women aged 45-64 (73.4%).

50.1% of the sample answered about their employment situation. It was remarked that the percentage of women actively working (37.4%) was significantly lower than that of men (57.8%) ( $p= 0.004$ ). The percentage of active women aged 45-65 (37.1%) was significantly lower ( $p =0.005$ ) than that of active men of the same age (60.7%).

<b>Table 2.</b> Socio-demographic variables and employment situation			
	<b>Sex</b>		<i>p</i>
	<b>Female n (%)</b>	<b>Male n (%)</b>	
<b>Age (years)</b>			0.44
19-44	53 (20.7)	37 (23.9)	-
45-64	188 (73.4)	108 (69.7)	
≥65	15 (5.9)	10 (6.5)	
<b>Employment situation</b>			0.004
Active	46 (37.4)	48 (57.8)	-
Unemployed	77 (62.6)	35 (42.2)	
<b>Age (years)</b>			
19-44			0.341
Active	9 (40.9)	11 (61.1)	-
Unemployed	13 (59.1)	7 (38.9)	
45-64			0.005
Active	36 (37.1)	37 (60.7)	-
Unemployed	61 (62.9)	24 (39.3)	
≥ 65			1.00
Active	1 (25)	0 (0)	-
Unemployed	3 (75)	4 (100)	
<i>p</i> = Statistical significance			



4.2. Level of PA and level of PA associated with employment status (Table 3)

According to the record of the seven items of the level of PA in METs per week, values were obtained from 366 participants (89%), excluding 45 due to incomplete items. Men present a higher energy expenditure than women, with medians of 1939.5 vs 1386.0 ( $p= 0.043$ ). Comparing different sex and age groups, there were no statistically significant differences in MET levels.

<b>Table 3.</b> Level of PA and level of PA associated with employment status			
	<b>Sex</b>		
	<b>Female (n) M Me</b>	<b>Male (n) M Me</b>	<b>p</b>
<b>METs / wk.</b>			
<b>METs / wk. Total</b>	(230) 2565.4 1386.0	(136) 3617.1 1939.5	0.043
<b>METs / wk. ES active</b>	(39) 2380.5 1188.0	(44) 3214.5 1386.0	-
<b>METs / wk. ES unemployed</b>	(70) 2171.9 1386.0	(31) 3960.2 2358.0	
<b>Age (years)</b>			
19-44			
METs / wk. Total	(48) 2843.1 2029.5	(31) 4373.7 2556.0	0.377
METs / wk. ES active	(7) 4200.4 2346.0	(10) 2373.7 891.0	-
METs / wk. ES unemployed	(11) 1527.4 990.0	(6) 4109.7 2.722.5	
45-64			
METs / wk. Total	(168) 2388.9 1386.0	(97) 3305.6 1638.0	0.083
METs / wk. ES active	(32) 1982.4 1046.2	(34) 3461.7 1491.0	0.176
METs / wk. ES unemployed	(56) 2328.8 1386.0	(22) 3564.6 2341.5	0.022
≥ 65			
METs / wk. Total	(14) 3732.1 1653.0	(8) 4462.8 1856.2	0.616
METs / wk. ES active	(1) 0 0	(1) 0 0	-
METs / wk. ES unemployed	(3) 1607.0 1386.0	(3) 6562.5 1732.5	-
M = Mean; Me = Median; p= statistical significance ES = Employment Situation			

In the assessment of the relationship between sex, age and employment status, and METs per week, statistically significant differences were found in METs per week regarding active and unemployed men ( $p= 0.018$ ). Likewise, METs were significantly higher in unemployed men aged 45-64 than in women the same



age, with medians of 2341.5 and 1386.0 respectively ( $p= 0.022$ ). No statistically significant differences were found for the other variables.

#### 4.3. Influential variables in METs (Table 4)

Finally, in order to find the influencing variables in the METs, the analysis was carried out using an ANOVA model where the independent variables were sex, age, and employment situation. The results show (Table 4) that the sex variable remained associated with METs, the rest being not significant.

Table 4. Influential variables in METs			
Variable	<i>F</i> (df)	<i>p</i>	<i>Eta</i> <sup>2</sup>
Sex	$F(1.174) = 4.12$	0.044	0.073
Age	$F(2.174) = 0.454$	0.636	0.005
Employment situation	$F(1.174) = 0.035$	0.853	0.001
Sex and Age	$F(2.174) = 0.742$	0.477	0.008
Sex and Employment situation	$F(1.174) = 2.514$	0.115	0.014
Age and Employment situation	$F(1.174) = 0.278$	0.598	0.002
Sex and Age and Employment situation	$F(1.174) = 3.136$	0.078	0.018
df: degrees of freedom. <i>Eta</i> <sup>2</sup> : effect size			

#### 4.4. Reasons for non-attendance (Table 5)

The percentage of women who did not attend a session due to an illness (53.4%) compared to that of men (30.4%) was significantly higher ( $p= 0.045$ ). Regarding lack of time, the percentages by sex were also different ( $p= 0.009$ ), being higher in men (20.3% vs. 7.8%).

Table 5. Reasons for non-attendance			
	Sex		p
	Female	Male	
Reasons for non-attendance	n (%)	n (%)	
Illness	62 (53.4)	24 (30.4)	0.045
Lack of time	9 (7.8)	16 (20.3)	0.009
Time incompatibility	8 (6.9)	12 (15.2)	0.056
Family related reasons	11(9.5)	7 (8.9)	1.0
<b>Age (years)</b>			
19-44			
Illness	9 (47.4)	5 (27.8)	0.0772
Lack of time	4 (21.1)	5 (27.8)	0.479
Time incompatibility	2 (10.5)	3 (16.7)	0.389
Family related reasons	2 (10.5)	0 (0)	0.510
45-64			
Illness	49 (53.8)	19 (32.2)	0.115
Lack of time	5 (5.5)	10 (16.9)	0.024
Time incompatibility	5 (5.5)	9 (15.3)	0.043
Family related reasons	9 (9.9)	7 (11.9)	0.597
Employment related reasons	3 (3.3)	3 (5.1)	0.672
≥ 65			
Illness	4 (66.7)	0 (0)	0.125
Lack of time	0 (0)	1 (50)	0.4
Time incompatibility	1 (16.7)	0 (0)	1.0
Family related reasons	0 (0)	0 (0)	
p = Statistical significance			

In the group aged 45-64 of both women and men, statistically significant differences were found in the reasons of lack of time: 5.5% and 16.9% ( $p=0.024$ ), and time incompatibility: 5.5% and 15.3% ( $p=0.043$ ). In both cases, the reasons for non-attendance were greater in men.

## 5. DISCUSSION

In global terms, women presented *greater participation* in the Program than men, higher levels of unemployment, and a lower level of PA.

The participation of women in this Program (62.3%) is higher than in other international studies that place it between 50.5% and 58%<sup>(3,4,7,27)</sup>. This great number of participating women may be related to their higher referral to the Program due to the greater frequency of women in Primary Care Centres since women suffer more from chronic diseases than men and have a worse perception of quality of life<sup>(28,29)</sup>. According to Urbanos-Garrido, gender roles influence the use of health services since, in the same health conditions, women tend to visit the PC doctor more than men<sup>(28,30)</sup>.

As in other studies, women have a lower *level of PA* than men in all age groups<sup>(3,4,18,31)</sup>, which generates discrimination regarding opportunities to enjoy the benefits of exercise. Women perform less physical activity due to beliefs

and differentiated roles derived from their disadvantage in the hierarchy of power, social position, access to resources and dedication to family life<sup>(18,32)</sup>.

The greater percentage of unemployed women in this study coincides with that of Hunter<sup>(4)</sup>, where 57.8% of women are economically inactive compared to 47.2% of men<sup>(4)</sup>. By contrast, in Marques' European study, 61% of women are employed compared to 59.6% of men<sup>(7)</sup>. Various studies highlight the employment situation as a social determinant of health since gender roles confer to women the role of mother, wife and informal caregiver. This aspect determines their withdrawal from the labour market, side-lining remunerated work and therefore having less social contacts, greater isolation at home and less personal satisfaction<sup>(9,28,31)</sup>. Consequently, women have fewer options of healthy behaviours such as the access to PA programs, therefore, social support becomes important for the development of programs that help them reach a healthy level<sup>(33)</sup>. However, in our study, no significant differences were found between unemployed and employed women in PA levels. Regarding men, the fact of being unemployed involves higher levels of PA, as Hunter's study also states<sup>(4)</sup>. Other studies reveal that working involves higher levels of total PA but lower levels of PA during leisure time<sup>(33)</sup>. Being aware that these factors, sex and socio-occupational situation, determine the opportunities for PA, both should be considered by professionals when prescribing exercise programs, besides individually asking people how their work and family affect their own self-care and social relations outside the domestic environment.

As regards *non-attendance reasons*, in our study, lack of time was significantly higher in men. However, according to the Survey on Sports Habits in Spain 2015<sup>(34)</sup>, this reason was higher in women. The aforementioned Survey also shows that both health and lack of time are the main obstacles to the practice of PA for both sexes<sup>(34)</sup>. A review of the literature for the validity of a questionnaire on reasons for leaving sports centres<sup>(35)</sup>, shows that lack of time is the most stated reason for ceasing the practice of physical activity. It would be interesting to check whether the time not devoted to exercise is dedicated to attend to the unequal distribution of gender roles that vary from women's attention to the family private sphere to men's attention to the public and social sphere. RLAE

Regarding *differences by age and sex groups*, women aged 45-64 was the largest group. This subgroup presented significant differences in relation to the group of men the same age, with a higher unemployment rate and a lower level of PA found in women. Traditionally, sport and PA have been largely associated with men owing to the strengthening of the body, strength, defence and power<sup>(36)</sup>. Women have started practising physical activity and sport late, finding themselves in a vital moment in which they have to combine the double shift (work and family environment) with their health self-care<sup>(34,37)</sup>. Middle-aged women, with their high participation in the Program, demonstrate their interest in healthy PA behaviours; however, it is evident that the levels achieved by them differ significantly from those obtained by men the same age. Given that they do not have the same work activity, it can be noticed that the gender roles demanded by society from women are the main impediment to obtaining healthier levels of PA.

We found that the group aged over 65 are the most physically active, a circumstance that could be explained by the fact that, after retirement, they enjoy greater autonomy and free time to devote to PA and also because they have a high motivation to practice sport in order to take care of their health<sup>(6,33,38-40)</sup>. The ageing of the population in general, the greater life expectancy of women and nevertheless worse perception of health and healthy life due to their higher survival rate, higher morbidity, as well as social, economic and personal factors<sup>(41)</sup> (also called "gender paradox" due to the interaction of biological and social determinants<sup>(21)</sup>), should lead us to take into consideration their greater freedom at this age in order to promote the prescription of comprehensive -biopsychosocial- PA programs that would have an effect on self-care and imply a more active and healthy ageing.

This study reveals the differences between women and men regarding PA behaviours and how, associated with age and employment situation, they indicate gender inequalities in health.

Among its limitations are those typical of a secondary study: the ACTIVA-Murcia Program was designed as an intervention program with PA for people with cardiovascular risk factors, with no subsequent intention of developing research results. Therefore, some variables such as employment situation are weakly defined. However, data collection was carried out by a single team of people unifying criteria for the interpretation of the variables.

## 6. CONCLUSION

The study shows the relationship between women and higher unemployment, lower initial PA level and greater non-attendance to the ACTIVA-Murcia Program due to illness. This relationship is most evident in the group of women aged 45-65.

The findings highlight the importance of considering sex and age from a gender perspective when designing and developing PA interventions, since the strength of the associations between socio-demographic variables and PA habits and behaviours varies according to sex and age, implying higher mortality and vulnerability to diseases for women than for men. Identification of the sociocultural factors that influence the practice of PA within each sex and age group is necessary in order to develop health promotion policies that consolidate PA behaviour throughout life.

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