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The effect modification of occupational social class in the association between sex and type 2 diabetes: results from the *Brazilian Longitudinal Study of Adult Health* (ELSA-Brasil)

O efeito da modificação da classe social ocupacional na associação entre sexo e diabetes tipo 2: resultados do *Estudo Longitudinal de Saúde do Adulto no Brasil* (ELSA-Brasil)

El efecto del cambio de clase social ocupacional en la asociación entre sexo y diabetes tipo 2: resultados del *Estudio Longitudinal de Salud del Adulto en Brasil* (ELSA-Brasil)

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Abstract

We evaluated data from 14,156 baseline participants of the Brazilian Longitudinal Study of Adult Health *(ELSA-Brasil) collected from 2008 to 2010, to analyze the effect modification of occupational social class on the association between sex and prevalence of type 2 diabetes. The crude and age-adjusted prevalence, according to sex and occupational social class, were estimated using generalized linear models with binomial distribution and logarithmic link function. This model was also used to estimate prevalence ratios (PR), adjusting for age group, race/skin color, and maternal education. The effect modification was measured in the multiplicative and additive scales. Males had higher crude and age-adjusted prevalence in all occupational social class strata. As occupational social class increases, the prevalence among males and females decreases. The PR of males to females decreased according to occupational class: 66% (PR = 1.66; 95%CI: 1.44; 1.90), 39% (PR = 1.39; 95%CI: 1.02; 1.89), and 28% (PR = 1.28; 95%CI: 0.94; 1.75) in the high, middle, and low occupational social classes, respectively. We found an inverse effect of the occupational social class on the association between sex and type 2 diabetes on the multiplicative scale, suggesting that it acts as an effect modifier.*

Gender and Health; Diabetes Mellitus; Socioeconomic Factors; Prevalence

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Introduction

Globally, 537 million (10.5%) adults (20-79 years) live with diabetes. Projections indicate that 783 million people will have diabetes by 2045 (12.2%). In Brazil, the number of adults with diabetes will increase from an estimated 15.7 million by 2021 to 23.2 million by 2045 [1].

Some studies found differences between males and females in risk factors, clinical manifestations, and sequelae of type 2 diabetes, and that prevention, detection, and treatment can differently affect them [2,3,4].

Studies found a change in diabetes prevalence pattern from female predominance to equality or even male preponderance with the country's development [1,5,6,7]. In Brazil, although this change in the prevalence pattern remaining unclear, the national diabetes mortality statistics verified this inversion. In other words, there was a shift from female preponderance to equality or male predominance [8].

A meta-analysis by Agardh et al. [9] found an association between low levels of education, income, and occupation with a 30% to 40% higher risk of type 2 diabetes compared with higher levels of these measures. The associations were more consistent among high-income countries, demonstrating the need for more studies in low- and middle-income countries. In addition to the results that suggest that socioeconomic disadvantages favor type 2 diabetes, these associations were more prominent among females than males.

Most studies assessing socioeconomic status and diabetes use traditional measures such as income, education, and occupation. Although education defines potential occupations, which influence income levels, these measures of socioeconomic position should not be used indistinctly, as they represent different causal paths and processes [9,10]. Thus, these attributes must be considered together, since these relationships are constructed and reconstructed in tandem with and crossed by others [11]. For this reason, the *Brazilian Longitudinal Study of Adult Health* (ELSA-Brasil), in cooperation with economists from the Center for Development and Regional Planning, Federal University of Minas Gerais (CEDEPLAR/UFMG), created a new measure of socioeconomic position, named occupational social class. It is a summary measure created by deriving scores for a set of occupations, considering education and income that represents social class [12].

Based on the assumption that behavioral characteristics and metabolic alterations of males and females may vary according to social class, potentially resulting in different prevalence ratios for type 2 diabetes, this study aimed to evaluate the presence of effect modification of the occupational social class on the association between sex and type 2 diabetes prevalence in the additive and multiplicative scales.

Methods

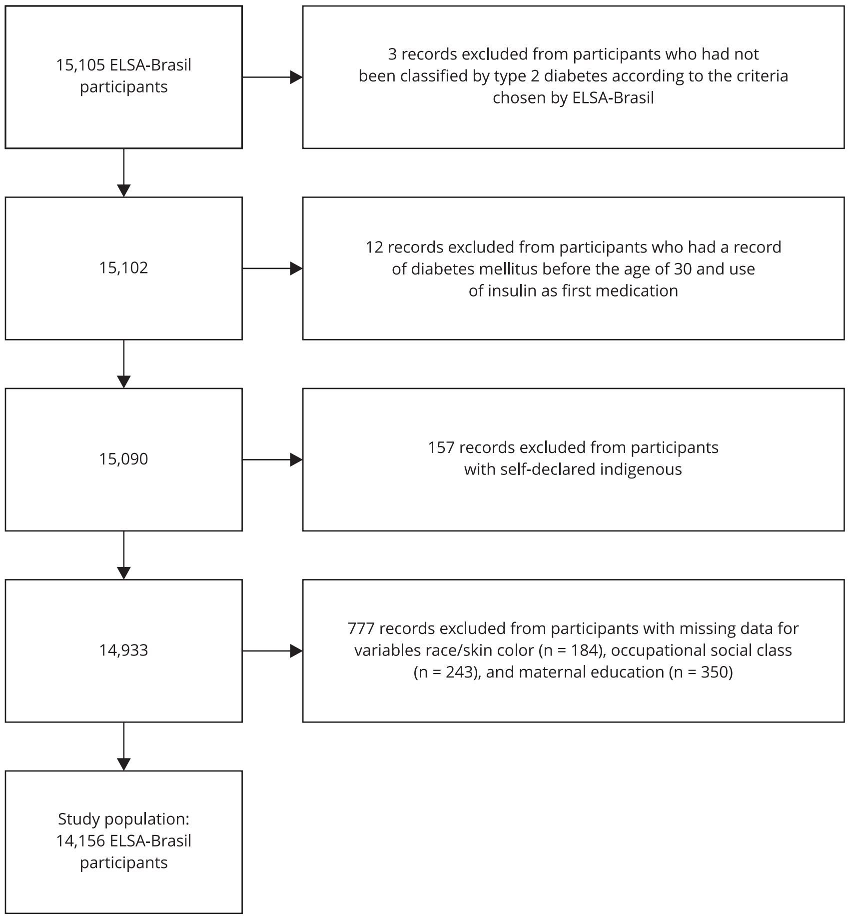
Study sample

This is a cross-sectional study using data from the ELSA-Brasil baseline, collected from 2008 to 2010. ELSA-Brasil is a multi-center cohort study of 15,105 active or retired public servants (support staff, administrative staff, and professors) of public teaching and research institutions from six Brazilian state capitals, aged from 35 to 74 years [13].

In this study, only participants diagnosed type 2 diabetes according to the criteria chosen by ELSA-Brasil and those who self-declared race/skin color as white, mixed-race, black, or yellow (Figure 1) were included. To minimize the inclusion of type 1 diabetes, patients who had records of diabetes before the age of 30 and used insulin as the first medication were excluded. Records with missing data for the variables used in the statistical model were also excluded. Thus, the final sample was 14,156 individuals.

Figure 1

Selection of the study's population.



ELSA-Brasil: *Brazilian Longitudinal Study of Adult Health*.

Measures

The outcome variable was type 2 diabetes, classified according to the criteria chosen by ELSA-Brasil, which considers both cases with self-referred previous diagnoses and individuals with no previous diagnosis who were diagnosed based on plasma glucose levels (fasting plasma glucose ≥ 126mg/dL or plasma glucose after 2-hour oral glucose tolerance test ≥ 200mg/dL or glycated hemoglobin ≥ 6.5%) [14].

The exposure variable retrieved by the ELSA-Brasil questionnaire was biological sex. However, this study aimed to understand relations between the sexes as social relations. Thus, the variable sex was considered as proxy for gender, since most of the population is cisgender [15]. Notably, social relations are sexed. In this way, the study also aimed to avoid a polarization between the biological and the social dimensions to understand the social processes involved in the association between type 2 diabetes, occupational social class, and gender. The potential effect modifier variable was occupational social class. This variable is a summary measure calculated by deriving scores for a set of occupations while also considering educational level, social status, and income as socioeconomic position [12]. This study worked only with three occupational social class strata: high (high-upper and high-lower), middle (middle-upper, middle-middle, and middle-lower), and low (low-upper and low-lower). Educational level was evaluated as a potential effect modifier in the sensitivity analysis.

Based on the theoretical model used as a reference in the analysis, the following variables were considered as potential confounders: age, maternal education, and self-declared race/skin-color. These factors are predictive of type 2 diabetes and might influence how males and females perceive their role in society and, consequently, which behaviors are related to the roles they perform.

Statistical analysis

To simplify, in the characterization of the study population (Table 1), age in four groups.

Crude and age-adjusted prevalence and their 95% confidence intervals (95%CI) were calculated (Table 2) using generalized linear models with binomial distribution and logarithm link function [16]. Sex, occupational social class, an interaction term between these two variables, and age (in years old) were included, depending on the model. As the model included age, the age at 51.9 years (median) was fixed to calculate the adjusted prevalence for each sex and occupational social class levels.

By using the same type of statistical modeling, the strength of the association between sex and type 2 diabetes through prevalence ratios and their 95%CI (Table 3) were evaluated. Sex, occupational social class, and an interaction term between both were included, adjusting for age group (evaluated in four age groups), race/skin-color, and maternal education.

The effect modification of occupational social class on the association between sex and type 2 diabetes prevalence in the multiplicative and additive scales was measured [17]. In the multiplicative scale, the prevalence ratio and the respective Wald 95%CI was estimated based on the exponents of the B parameters of the regression model. To calculate the measures on the additive scale, and their 95%CI – estimated by the delta method – the analysis was restricted to two specific occupational social class strata. That is, even though there were originally three possible strata (high, middle, and low), two databases were created: the first included only records from participants with high and middle occupational social classes, and the other, only records from participants with high and low occupational social classes. After running the model again, the Excel (https://products.office.com/) "product term" spreadsheet developed by Knol & VanderWeele [17] was used, which considers the estimates of the coefficients and the covariance matrix, generating three measures that evaluate the departure from additivity of the studied factors effects, namely: (1) relative excess risk due to interaction (RERI), which expresses the part of the total effect due to the interaction [18]; (2) attributable proportion (AP), which expresses the proportion of the combined effect attributable to the interaction [19]; (3) synergy index (S), defined as the ratio of the combined effects and individual effects [20]. When RERI and AP = 0 and S = 1 no effect modification was found. Synergy and antagonism occur, respectively, when RERI and AP > 0 and S > 1 and RERI and AP < 0 and S < 1 [21].

A sensitivity analysis was conducted, substituting occupational social class with educational level. Moreover, the same analysis was carried out without excluding records with missing data for the maternal education and race/skin color variables and without adjusting for age, race/skin color, and maternal education to evaluate changes in the direction of the association.

The residuals were analyzed to verify the models goodness of fit. A good fit was considered when the diagnostic graphs for verifying influential and leverage points did not present values close to one and when the deviance residuals ranged from -3 to 3 [22]. To evaluate model quality, the goodness of fit test was used, with chi-squared distribution, under the null hypothesis that each model is well-adjusted at the 5% level.

Except for the additive and multiplicative interaction calculations, all analyses were carried out using SPSS, version 18.0 (https://www.ibm.com/).

Since ELSA-Brasil is a multi-center study, the ethics review committees of each participating institution and the National Ethics Research Committee approved the study research protocol. All participants signed an informed consent form before data collection. The Ethics Review Committee of the Institute of Collective Health Studies, Federal University of Rio de Janeiro approved this study (CAAE: 57801616.4.0000.5286).

Table 1

Characteristics of the study population by sex and occupational social class, according to potential confounding variables.

Characteristics	High (n = 4,800)		Middle (n = 5,994)		Low (n = 3,362)		Total (n = 14,156)	
	Male (n = 2,378) %	Female (n = 2,422) %	Male (n = 2,248) %	Female (n = 3,746) %	Male (n = 1,760) %	Female (n = 1,602) %	Male (n = 6,386) %	Female (n = 7,770) %
Maternal education								
Up to incomplete primary education	35.0	37.0	58.6	63.2	79.7	76.4	55.6	57.8
Complete primary education	20.9	21.7	21.7	19.9	13.2	16.2	19.0	19.7
Complete secondary education	30.0	27.2	15.9	13.4	6.5	6.4	18.6	16.3
Complete higher education	14.1	14.2	3.8	3.5	0.6	0.9	6.8	6.3
Self-declared race/skin color								
White	76.2	68.3	44.8	46.9	36.8	39.4	54.3	52.0
Mixed-race	16.9	20.1	35.9	29.0	40.0	32.4	29.9	26.9
Black	4.2	7.6	17.5	21.2	22.1	26.2	13.8	18.0
Yellow	2.6	4.0	1.9	2.9	1.1	2.0	1.9	3.0
Age group (years)								
35-44	20.7	20.7	29.2	25.8	18.9	16.0	23.2	22.2
45-54	31.1	33.7	44.5	45.7	43.5	35.8	39.2	39.9
55-64	30.5	34.3	21.1	22.1	28.9	35.3	26.7	28.6
65-74	17.7	11.3	5.2	6.5	8.6	12.9	10.8	9.3

Source: baseline of the *Brazilian Longitudinal Study of Adult Health* (2008-2010) [13].

Table 2

Type 2 diabetes prevalence among men and women according to occupational social class (n = 14,156).

Occupational social class	n	Cases	Crude prevalence (%)	95%CI	Age-adjusted prevalence (%)	95%CI
High						
Female	2,422	271	11.2	9.9; 12.4	9.6	8.6; 10.7
Male	2,378	446	18.8	17.2; 20.3	15.0	13.7; 16.3
Middle						
Female	3,746	615	16.4	15.2; 17.6	16.5	15.4; 17.7
Male	2,248	503	22.4	20.7; 24.1	22.4	20.8; 24.1
Low						
Female	1,602	384	24.0	21.9; 26.1	19.4	17.7; 21.1
Male	1,760	505	28.7	26.6; 30.8	24.7	22.9; 26.5
Total						
Female	7,770	1,270	16.3	15.5; 17.2	15.1	14.3; 15.8
Male	6,386	1,454	22.8	21.7; 23.8	20.2	19.2; 21.2

95%CI: 95% confidence interval.

Source: baseline of the *Brazilian Longitudinal Study of Adult Health* (2008-2010) [13].

Note: use of generalized linear models with binomial distribution and logarithm link function. For the age-adjusted estimates, age was fixed at 51.9 years (median).

Table 3

Prevalence ratio for type 2 diabetes according to sex and occupational social class (n = 14,156).

	Occupational social class					
	High		Middle		Low	
	PR	95%CI	PR	95%CI	PR	95%CI
Sex						
Female	Reference		1.52	1.33; 1.74	1.77	1.53; 2.04
Male	1.66	1.44; 1.90	2.11	1.35; 3.28	2.26	1.43; 3.56
PR among males/PR among females	1.66	1.44; 1.90	1.39	1.02; 1.89	1.28	0.94; 1.75
	High vs. middle		High vs. low			
	Interaction measure	95%CI	Interaction measure	95%CI		
Multiplicative scale						
PR ratio	0.838	0.707; 0.993	0.772	0.648; 0.919		
Additive scale						
Relative excess risk due to interaction	-0.054	-0.311; 0.204	-0.179	-0.466; 0.109		
Attributable proportion	-0.025	-0.147; 0.096	-0.080	-0.208; 0.049		
Synergy index	0.954	0.767; 1.188	0.874	0.713; 1.072		

95%CI: 95% confidence interval; PR: prevalence ratio.
Source: baseline of the *Brazilian Longitudinal Study of Adult Health* (2008-2010) [13].
Note: use of generalized linear models with binomial distribution and logarithm link function.

Results

Table 1 shows the characteristics of the study population by sex and occupational social class, according to potentially confounding variables. We found a higher proportion of participants whose mothers had up to incomplete primary education in all groups. However, this proportion increased as the occupational social class decreased. Most participants in the high occupational social class were white, while in the other strata black and mixed-race participants predominated, among males and females. The age distribution differed considerably between the groups. We observed a higher proportion of older participants in the high occupational social class, especially among males, followed by the low occupational social class, but with a predominance of females. In the middle occupational social class, females and males populations were younger when compared with the high and low occupational social class.

Table 2 shows that males had higher crude and age-adjusted type 2 diabetes prevalence in all strata of the occupational social class. As occupational social class increases, diabetes prevalence decreases in males and females.

When we analyzed the male/female ratio of type 2 diabetes prevalence within the occupational social class strata, we verified that males were associated with a 66% (PR = 1.66; 95%CI: 1.44; 1.90), 39% (PR = 1.39; 95%CI: 1.02; 1.89), and 28% (PR = 1.28; 95%CI: 0.94; 1.75) prevalence ratio, higher in the high, middle, and low occupational social class, respectively (Table 3). However, this result was not statistically significant at a 5% level in low occupational social class. At the same time, we verified a negative effect modification of occupational social class on the association between sex and type 2 diabetes, which was only statistically significant on the multiplicative scale.

When we substituted occupational social class with educational level, we found similar results while evaluating the effect modification on the multiplicative and additive scales (Table 4). Furthermore, when we carried out the analyses without excluding records with missing data for maternal education and race/skin color variables and without adjusting for age group, race/skin color, and maternal education (Supplementary Material. Table S1: http://cadernos.ensp.fiocruz.br/static//arquivo/supl-e00150322_4483.pdf), we found no changes in the direction of the association. Regarding the residuals analysis, we found satisfactory results for all measures of socioeconomic position (data not shown).

Discussion

We found a greater type 2 diabetes prevalence among males in all occupational social class strata. However, the occupational social class had an effect modification on the association between sex and type 2 diabetes on the multiplicative scale, with a reduction in the male/female prevalence ratio from the high occupational social class to the low occupational social class.

Other studies [23,24,25] also found a pattern of male preponderance in diabetes prevalence. However, study outcomes vary in Brazil; for example, a national multi-center investigation in 1986 and 1987 – including plasma glucose triage – found similar prevalence among males and females [26]. The household survey of *Risk Behaviors and Referred Morbidity from Non-Communicable Diseases*, carried out from 2002 to 2005 in 18 capitals of Federative Units, verified a similar result when analyzing the prevalence of self-referred diabetes [27]. However, most national studies based on self-referred diagnoses found a higher prevalence among females [28,29,30]. Since mortality statistics can shed light on sex differences in diabetes prevalence, we highlight a study that evaluated the Brazilian pattern of diabetes mortality from 1980 to 2012 for both sexes. This study verified a shift from female preponderance to equality or male predominance [8].

Table 4

Type 2 diabetes prevalence ratio according to sex and educational level (n = 14,394).

	Education level					
	Higher		Complete secondary		Up to complete primary	
	PR	95%CI	PR	95%CI	PR	95%CI
Sex						
Female	Reference		1.52	1.35; 1.71	1.76	1.51; 2.04
Male	1.54	1.38; 1.71	2.00	1.38; 2.90	2.12	1.39; 3.25
PR among males/PR among females	1.54	1.38; 1.71	1.32	1.02; 1.69	1.21	0.92; 1.59

	Higher vs. complete secondary education		Higher vs. up to complete primary education	
	Interaction measure	95%CI	Interaction measure	95%CI
Multiplicative scale				
PR ratio	0.855	0.739; 0.990	0.784	0.662; 0.930
Additive scale				
Relative excess risk due to interaction	-0.047	-0.273; 0.179	-0.200	-0.483; 0.082
Attributable proportion	-0.024	-0.138; 0.091	-0.100	-0.244; 0.045
Synergy index	0.955	0.765; 1.191	0.835	0.651; 1.071

95%CI: 95% confidence interval; PR: prevalence ratio.

Source: baseline of the *Brazilian Longitudinal Study of Adult Health* (2008-2010) [13].

Note: use of generalized linear models with binomial distribution and logarithm link function.

Regarding biological mechanisms that may explain the higher prevalence among males, we emphasize that males develop type 2 diabetes at a lower body mass index (BMI) and present higher amounts of visceral and hepatic adipose tissue and greater insulin resistance, even after adjusting for BMI [25,31,32]. Males also have higher fasting plasma glucose levels from normoglycemia, prediabetes, and type 2 diabetes diagnosis [31,33]. The underlying mechanism responsible for the higher fasting plasma glucose levels among males may be the result of anthropometric differences. While BMI is a better predictor among females, waist circumference seems to be a better predictor for increased levels of fasting plasma glucose in males. Moreover, during diagnosis, males have greater waist circumferences. High estrogen levels in women may also play a role in their lower levels of fasting plasma glucose since estrogen concentrations are related to an improvement in sensitivity to insulin and reduction of liver glucose production. Another possibility is that glucose detection in the liver may be better in females than in males. Under normal conditions, a self-regulatory liver mechanism operates on the level of the glucose-6-phosphate reserves resulting in glucose production suppression in the liver. Thus, differences between males and females in the activity of the liver enzyme glucokinase, which catalyzes the phosphorylation of glucose into glucose-6-phosphate, or differences in the expression of genes involved in detecting glucose may explain part of the differences in levels of fasting plasma glucose among males and females [33].

Similarly to our study, a nationwide prospective study of about 500,000 Chinese adults also revealed that the associations between socioeconomic position and diabetes prevalence differ between males and females. Among males, the Chinese study found a positive association between diabetes prevalence and educational level (adjusted OR = 1.21; 95%CI: 1.09; 1.35) and household income (adjusted OR = 1.45; 95%CI: 1.34; 1.56). Among females, it found an inverse association between educational level and diabetes risk (adjusted OR = 0.69; 95%CI: 0.63; 0.76), while for household income, the positive associations with diabetes prevalence were weaker than in males (adjusted OR = 1.26; 95%CI: 1.19; 1.34) [34].

The effect modification of the occupational social class – which we have identified – reinforces the theory of resource substitution, suggesting that education has a stronger moderating effect on females since they have fewer socioeconomic resources, which plausibly compensate for genetic risk, when compared to males. Thus, a higher educational level is necessary for females to be able to reach better socioeconomic conditions [35], consume healthier diets, and have a greater interest in and access to information and sources that may improve their health [36] and nutritional status. Furthermore, education also has a direct effect on income [37], especially because it enables upward social mobility and occupational insertion [38,39].

These results can be interpreted not only according to the underlying biological mechanisms, but according to the social dimension that crosses the bodies of males and females and which also imprints distinct forms of illness, suffering, and care. Thus, we sought to incorporate another possible interpretation to these results, bringing the gender perspective to the heart of the discussion. We believe that this theoretical framework can be fruitful when seeking to understand the differences we have found in the patterns of male preponderance of type 2 diabetes prevalence.

Commonly, the literature indicates that males have a greater susceptibility to adopt risk behaviors, such as alcoholism, smoking [11] and unhealthy diets [40]; denying pain or suffering to reinforce the image of male strength. The expectation that men adopt risk behavior is part of the gender norms. Similarly, gender expectations strongly associate care, whether for oneself or others, with females [41,42]. These factors are strongly associated with gender differences in socialization, according to which there is an expectation that males present themselves as strong, fearless, and invulnerable providers [43], and females, as more vigilant and responsible for the care, in general.

Although males, when compared with females, present biological and behavioral factors that increase the risk of developing type 2 diabetes, this is not always reflected in type 2 diabetes prevalence. In this study, we observed a reduction in the male/female ratio of type 2 diabetes prevalence, from high to low occupational social class strata, with no significant differences between males and females in the low occupational social class. Thus, the low occupational social class led to a loss of the advantage presented by females in the other socioeconomic strata. However, we may assume another aspect related to this dimension, considering differences in eating behavior patterns according to social class. Currently, the literature has widely discussed the obesity epidemic in Brazil and globally, suggesting the sedentary lifestyles and ultra-processed foods and beverages consumption as relevant determinants [44]. A recent document showed that individuals with the lowest educational and income levels have an eating pattern that prioritizes these high-energy foods with low-nutritional values [45]. It certainly contributes to the reduction of the advantage initially observed among females.

Our discussion has been based on the social uses of the body, gender differences in socialization, different appropriations of the perspective of care, gender differences in educational attainment, and in obtaining work positions that are privileged in the social hierarchy, eating behaviors that are shaped by social class and gender, among others. Without ignoring the "biological predisposition", according to sex, to metabolizing certain substances, all the dimensions listed above intersect and complexify the challenge of understanding the experiences of vulnerability, of both males and females, when facing specific health issues. Intersectionality theory [46,47] may help us understand that complex phenomena, such as those found in the health field, are not only the result of distinct units that are added together, but rather of intersecting lines over multiple dimensions of subjects' social existence. In other words, an intersecting factors combination reinforces one another and passes through bodies, producing diverse effects from multiple interactions [41]. To acknowledge this complexity, which crosses and surpasses the individual-biological dimension, that we seek to raise some hypotheses to understand the phenomenon we presented in this study.

The study's limitations are (1) lack of population representativity because the sample consists of university and research institute workers and (2) selective survival biases due to its cross-sectional design. In the first limitation, since people who experienced extreme social adversity or who are at the top of the social hierarchy are not well-represented, we might observe an underestimation of the magnitude of the association between occupational social class and type 2 diabetes. The selective survival bias may contribute to the lower male/female ratio in the type 2 diabetes prevalence that we observed in the lower occupational social class.

The study strengths are the use of a new measure of socioeconomic position; the large sample size, which allowed effect modification testing; the fact that the type 2 diabetes diagnosis considered both self-referred, previously-diagnosed cases, and previously-undiagnosed cases diagnosed by plasma glucose evaluation; the sensitivity analysis carried out with a different measure of socioeconomic position; and the exploration of the effect modification in the additive and multiplicative scales with an emphasis on sex, unlike other studies.

Conclusion

We observed a male preponderance in the type 2 diabetes prevalence in all occupational social class strata, as well as the effect modification of this measure of socioeconomic position on the association between sex and type 2 diabetes. The last result indicates that health inequalities between males and females unevenly affect all occupational social class strata.

The definitive reasons for these differences remain unclear and require further research. However, to prevent type 2 diabetes, we need policies and actions focused on reducing gender asymmetries, drawing attention to the fact that the historically constructed sociocultural relations between males and females are not biologically determined and may be changed.

Contributors

T. A. Malhão participated on the study design, data analysis and interpretation, manuscript writing, and approved the final version to be published. V. T. Baltar participated on the study design, data analysis and interpretation, manuscript revision, and approved the final version to be published. C. S. Cabral participated on the data interpretation and review and approved the final version to be published. R. H. Griep participated on the data interpretation and review and approved the final version to be published. R. S. Pinheiro participated on the data interpretation and review and approved the final version to be published. D. Chor participated on the data interpretation and review and approved the final version to be published. C. M. Coeli participated on the study design, data interpretation, manuscript review, and approved the final version to be published.

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Resumo

Nós avaliamos dados de 14.156 participantes do Estudo Longitudinal de Saúde do Adulto no Brasil *(ELSA-Brasil) coletados entre 2008 e 2010 para analisar o efeito de modificação da classe social ocupacional na associação entre sexo e prevalência de diabetes tipo 2. A prevalência bruta e ajustada por idade, de acordo com sexo e classe social ocupacional, foram estimadas usando modelos lineares generalizados com distribuição binomial e função de ligação de logaritmo. Esse modelo também foi utilizado para estimar razões de prevalência (RP), ajustando para faixa etária, raça e escolaridade materna. Medimos a modificação do efeito nas escalas multiplicativa e aditiva. Os homens apresentaram prevalência bruta e ajustada por idade mais alta em todos os estratos de classe social ocupacional. À medida que a classe social ocupacional aumenta, há uma redução na prevalência entre homens e mulheres. A RP de homens para mulheres diminuiu de acordo com a classe ocupacional: foi de 66% (RP = 1,66; IC95%: 1,44; 1,90), 39% (RP = 1,39; IC95%: 1,02; 1,89) e 28% (RP = 1,28; IC95%: 0,94; 1,75) nas classes sociais ocupacionais alta, média e baixa, respectivamente. Houve um efeito inverso da classe social ocupacional na associação entre sexo e diabetes tipo 2 na escala multiplicativa, sugerindo que ela atua como um modificador de efeito.*

Gênero e Saúde; Diabetes Mellitus; Fatores Socioeconômicos; Prevalência

Resumen

Evaluamos datos de 14.156 participantes del Estudio Longitudinal de Salud de Adultos en Brasil *(ELSA-Brasil) recopilados entre 2008 y 2010 para analizar el efecto del cambio de clase social ocupacional en la asociación entre género y prevalencia de diabetes tipo 2. La prevalencia bruta y ajustada por edad según el sexo y la clase social ocupacional se estimaron utilizando modelos lineales generalizados con distribución binomial y función de enlace logarítmico. Este modelo también se utilizó para estimar las razones de prevalencia (RP) ajustando por grupo de edad, raza y educación materna. Medimos la modificación del efecto en las escalas multiplicativa y aditiva. Los hombres tuvieron mayor prevalencia bruta y ajustada por edad en todos los estratos de clase social ocupacional. A medida que aumenta la clase social ocupacional, se reduce la prevalencia entre hombres y mujeres. La RP de hombres a mujeres disminuyó de acuerdo con la clase ocupacional: fue del 66% (RP = 1,66; IC95%: 1,44; 1,90), 39% (RP = 1,39; IC95%: 1,02; 1,89) y 28% (RP = 1,28; IC95%: 0,94; 1,75) en las clases sociales ocupacionales alta, media y baja, respectivamente. Hubo un efecto inverso de la clase social ocupacional en la asociación entre el sexo y la diabetes tipo 2 en la escala multiplicativa, lo que sugiere que actúa como un modificador del efecto.*

Género y Salud; Diabetes Mellitus; Factores Socioeconómicos; Prevalencia

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