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Original article

The prevalence of overweight and obesity, and distribution of waist circumference, in adults and children in the French Overseas Territories: The PODIUM survey

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Abstract

Aim. – This study aimed to describe the prevalence of overweight (excluding obesity) and obesity, and distribution of waist circumference, in children and adults in four French Overseas Territories (Guadeloupe, Martinique, French Guiana in the Caribbean and French Polynesia in the Pacific Ocean).

Methods. – The survey was designed to provide a sample representative of the population in each of the four territories. The protocol aimed to evaluate 600 adults (aged ≥ 15 years) and 300 children (aged: 5–14 years) in each territory.

Results. – In children, the differences were small among the territories in the prevalence of overweight (excluding obesity), as defined by the International Obesity Task Force (IOTF): Guadeloupe, 15.4%; Martinique, 17.0%; French Guiana, 13.2%; and French Polynesia, 17.2% ($P=0.49$). Larger, significant, differences were observed for obesity, with prevalences of 7.2%, 7.7%, 5.4% and 15.9%, respectively ($P<0.002$). In adults, the prevalence of obesity also differed significantly among the territories: 22.9%, 22.0%, 17.9% and 33.1% in Guadeloupe, Martinique, French Guiana and French Polynesia, respectively ($P<0.001$, adjusted for age and gender). However, overweight (excluding obesity) was again more homogeneously distributed, with prevalences of 31.7%, 33.6%, 30.3% and 34.4%, respectively ($P=0.43$, adjusted for age and gender). Waist circumference was larger in French Polynesia than in the other territories in both genders, and in both children and adults.

Conclusion. – While the distribution of overweight was relatively homogeneous, the prevalence of obesity differed considerably across the four territories. It was especially high in French Polynesia, and in children and women. Appropriate programmes are urgently needed in these populations, especially in children, to avoid the morbidity associated with obesity.

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Keywords: French Overseas Territories; Guadeloupe; Martinique; Polynesia; Guiana; Epidemiology; Adults; Children; Obesity; Overweight; Prevalence; Waist circumference

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Résumé

Prévalence du surpoids et de l'obésité, et distribution du tour de taille chez des adultes et des enfants de quatre Territoires français d'outre-mer. L'enquête PODIUM.

Objectif. – Décrire la prévalence du surpoids (excluant l'obésité), de l'obésité chez les enfants et les adultes, au sein de la population de Guadeloupe, Martinique, Guyane et Polynésie, ainsi que décrire la distribution du tour de taille.

Patients et méthodes. – La méthodologie de cette enquête a été conçue pour établir un échantillon représentatif de la population (600 adultes \geq 15 ans, 300 enfants cinq à 14 ans) dans chacun des Territoires.

Résultats. – Chez les enfants, de légères différences ont été observées entre territoires pour la prévalence du surpoids (excluant l'obésité) définie selon l'*International Obesity Task Force* (IOTF) : Guadeloupe (15,4 %), Martinique (17,0 %), Guyane (13,2 %) et Polynésie (17,2 %), $P=0,49$. Des différences significatives plus importantes sont observées pour l'obésité, respectivement 7,2 %, 7,7 %, 5,4 % et 15,9 %, ($P<0,002$). Chez les adultes, les prévalences d'obésité diffèrent également selon les territoires : 22,9 %, 22,0 %, 17,9 %, et 33,1 % en Guadeloupe, Martinique, Guyane et Polynésie, respectivement (après ajustement sur l'âge et sexe $P<0,001$). De même, les prévalences de surpoids excluant l'obésité se répartissent de façon homogène entre territoires : les valeurs correspondantes sont respectivement 31,7 %, 33,6 %, 30,3 %, et 34,4 %, (ajustement sur l'âge et sexe $P=0,43$). Le tour de taille est plus élevé en Polynésie que dans les autres territoires, dans les deux sexes, chez les enfants et chez les adultes.

Conclusion. – Il existe des différences dans la prévalence de l'obésité entre les territoires, alors que les prévalences de surpoids excluant l'obésité sont plus homogènes. Les valeurs d'obésité les plus élevées sont observées en Polynésie, chez les femmes, et chez les enfants. Le besoin de programmes de prévention dans ces populations est urgent, surtout chez les enfants, pour éviter la morbidité associée à l'obésité.

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Mots clés : Territoires français d'outre-mer ; Guadeloupe ; Martinique ; Polynésie ; Guyane ; Obésité ; Prévalence ; Excès pondéral ; Tour de taille ; Épidémiologie ; Enfants ; Adultes

1. Introduction

Obesity is a challenging public-health problem leading to cardiovascular disease and diabetes [1,2]. Its epidemiological characteristics have been described in continental France [3,4], whereas information on the prevalence of obesity and overweight in the French Overseas Territories is sparse, particularly for children. The few surveys available have been carried out separately, and differences in methodology do not allow accurate overall assessment. Overweight and obesity were respectively found in 37% and 14% of men, and 34% and 31% of women, aged more or equal to 25 years in 2007 in Guadeloupe [5]. In Martinique during 2003–2004, obesity was found in 14% of men and 26% of women aged more or equal to 16 years [6]. Overweight was observed in 29.4% of women, whereas no data were available for men. In French Polynesia, 38% of men and 40% of women were reported to be obese in 2002, and 34% and 26%, respectively, were reported to be overweight [7]. No data have been published for adults in French Guiana, nor any for children in any territory. Data are also sparse on the distribution of waist circumferences in these territories.

In summary, data on overweight and obesity in these four Overseas Territories have been obtained from surveys carried out at different times and in populations with different compositions, and have failed to include information on children. This is especially worrying as the data indicate an alarmingly high prevalence of obesity in these territories.

For this reason, the present PODIUM survey was designed to assess the prevalence of overweight and obesity in the four French Overseas Territories of Guadeloupe, Martinique, French Guiana and French Polynesia, using representative samples of both adults and children. In addition, the prevalence of underweight (thinness) was assessed, and waist circumferences were also described.

2. Methods

2.1. Survey population

The sample size determined for the cross-sectional surveys was 600 in the adult population that was at least 15 years of age, and 300 in children aged 5–14 years, in each territory. This allowed the estimation of obesity prevalence to within 4.0% for adults and 5.7% for children, with 95% confidence.

The surveys were conducted sequentially in each territory, during the period from December 2007 to November 2008. Each territory was stratified into administrative districts and sampling points were randomly selected, with the number of sampling points weighted according to the population distribution in the most recent census (1999) by the French National Institute for Statistics and Economic Studies (INSEE) for all territories except French Polynesia, which used 2002 census data. The number of sampling points was 98 in Guadeloupe (population 400,000 in 2006), 111 in Martinique (400,000), 71 in French Guiana (220,000) and 101 in French Polynesia (260,000). The first house was designated at each sampling point, with the subsequent houses selected by the random-route method for inclusion in the survey: turning either left or right at each junction, every fourth house was selected until the predetermined number of houses had been visited. The selected homes were visited between 08 00 and 20 00 h at least four times, after which, if there was still no one at home, the house was abandoned for the survey. In each household, only one person was selected according to the Kish method [8]; however, if that person did not agree to participate, the house was not included in the survey. Thus, the surveys covered a wide geographical area in each territory, with the sampling proportional to the size of the administrative district.

The populations of the four territories were informed of the survey through the local media (newspapers, radio and

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