

## BODY MASS INDEX, SUICIDE, AND HOMICIDE AMONG INHABITANTS OF THE CARIBBEAN ISLANDS<sup>1</sup>

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*Summary.*—To test the hypothesis that the more overweight and obese a nation, as measured by Body Mass Index, the greater the risk of suicide; mean scores of Body Mass Index for males and females over 15 years of age in 11 Caribbean Islands were not associated with either male or female rates of suicide or homicide with one exception, i.e., when controlling for gross domestic product per capita, mean Body Mass Indices for males were significantly and negatively associated with male rate of homicide.

Height, Body Mass Index, and ectomorphy ratios have all been used as measures of an individual's physique. Ectomorphy ratios are computed by dividing the mean height of each group by the cube root of the mean weight (Lester, 1985). Sheldon and Stevens (1942) related physique to personality. Later, researchers correlated some of Sheldon's measures of physique and depressive psychiatric illness (Holland, Masling, & Copley, 1970; Brown, Denis, Elston, Pollitzer, Prange, & Wilson, 1975). Another research team investigated the relationship between body build and crime (Wilson & Herrnstein, 1985); however, only a few studies of body build and general psychopathology have been reported. For instance in the 1980s Lester used measures of physique of individuals in several studies (Lester, 1985, 1987a, 1987b) and also examined the relationship between physique and suicide (Lester, 1981, 1987a, 1987b, 1996; Stack & Lester, 2007). Then, in 1999 Lester reported that scores of Body Mass Index for adults in 27 nations were not associated with either the total rates of suicide or homicide even after controlling for the gross domestic product per capita. More recently, some researchers reported finding a strong inverse association of Body Mass Index and the risk of suicide among men (Magnusson, Rasmussen, Lawlor, Tynelius, & Gunnell, 2006; Makamal, Kawachi, Miller, & Rimm, 2007). In contrast, Stack and Lester (2007) did not find risk of suicide inversely related to Body Mass Index when controlling for extraneous variables.

High rates of obesity are evident in rapidly industrializing countries, such as those in the Caribbean (WHO, 2000). Body Mass Index is a relatively crude indicator of adiposity; some researchers examined associations between overweight or obesity with depression, but results were equivocal (Les-

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ter, 1981, 1996, 1999; Stack & Lester, 2007; Magnusson, *et al.*, 2006). Interestingly, Makamal, *et al.* (2007) stated that, "body mass index (BMI, calculated as weight in kilograms divided by height in meters squared) has been linked to depression and the risk of suicide attempts and deaths in conflicting directions" (p. 468). Thus, in the present study the hypothesis was that the more overweight inhabitants of Caribbean Islands were, as measured by Body Mass Index, the greater the risk of death from suicide.

To test this hypothesis, national mean scores of Body Mass Index for males and females ages 15 to 100 years from WHO (2002) were correlated with the male and female age-standardized rates of suicide and homicide per 100,000 (Pan American Health Organization, 2006) for the last three years available from 11 Caribbean islands.<sup>2</sup> More specifically, in the "technical notes" the Pan American Health Organization reported, "Chapter 1 shows the average annual number of deaths with estimated and age-standardized rates per 100,000 population for 31 selected cause groups by country, sex, and age group around 1980, and for the last three years available. . . . The age-adjusted rates (for homicide and suicide) were calculated by the direct method and use the world standard population, which is shown in Table 2 at the end of the Technical Notes section" (p. 3). Thus, the age-adjusted rates of homicide and suicide were aggregated into 3-yr. averages. The 11 islands were Antigua and Barbuda, Bahama, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago.

Across the 11 Caribbean Islands mean Body Mass Index for males was not significantly associated with male rates of suicide and homicide (Pearson  $r_s = -.07$  and  $-.34$ , respectively). Similarly, mean Body Mass Index for females was not significantly associated with female rates of suicide and homicide (Pearson  $r_s = .17$  and  $-.19$ , respectively). The lack of relationship for both males and females does not support this study's hypothesis, i.e., overweight would be associated with greater risk of death from suicide. However, the present findings do confirm those reported by Stack and Lester (2007), when controls were applied for race and other covariates of Body Mass Index, and also those reported by Muldoon, Manuck, Mendelsohn, Kaplan, and Belle (2001). One notes also that Body Mass Index for adults in 27 nations was not associated with either the total rates of suicide or of homicide even after controlling for the gross domestic product per capita (Lester, 1999).

However, controls for the gross domestic product per capita, by means of partial correlation coefficients, did change one of these values, i.e., means

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<sup>2</sup>World Health Organization. (2007) WHO Global Infobase Online (<http://www.who.int/infobase/report.aspx>). Geneva: Author.

of Body Mass Index for males were significantly and negatively associated with male rates of homicide across the island nations (Pearson  $r = -.67$ ). Kaplan, Fontenot, Manuck, and Muldoon (1996) reported that adult male monkeys (*Macaca fascicularis*) consuming low fat and low cholesterol diets engaged in more aggressive contact behavior than did animals consuming high fat and high cholesterol diets. Perhaps this finding in macaques may suggest an association among people for low or reduced plasma cholesterol concentrations and a high incidence of violence-related mortality. Thus, with one exception in this small sample of 11 Caribbean islands, the average physiques of males and females in the nations, as measured by Body Mass Index, were not associated with national male and female rates of suicide and homicide.

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