

Applied nutritional investigation

Diet and eating habits in high and low socioeconomic groups

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Abstract

Objective: We measured the difference of dietary intake and eating habits across socioeconomic statuses (SESs) in Israel.

Methods: Participants were randomly recruited from three high SES municipalities and three low SES municipalities in the Negev. Participants were interviewed at home with 24-h food questionnaires that included additional questions regarding health and eating habits. Nutrient and energy intakes were compared between groups, as were major contributors to the energy and food groups.

Results: One hundred sixteen participants from the high SES group and 206 from the low SES entered the study. Those in the low SES group were older, heavier, less educated, and less physically active. Dietary intake among the participants in the low SES group was significantly lower in protein, monounsaturated fat, and most vitamins and minerals (thiamine, riboflavin, niacin, vitamin C, calcium, magnesium, and iron). Conversely, vitamin E intake was higher in the low SES group. In the low SES group, the main contributors to energy intake were breads, oils, and sugars. Oils, fats, and citrus fruits were consumed more among subjects in the low SES group, whereas dairy products, grains, and legumes were consumed less by subjects in the high SES group.

Conclusion: In a detailed survey conducted in two distinct populations, we found poorer diet quality in the low SES group. The root causes for such divergence need further study. As smoking declines in the modern world, nutrition will become the key risk factor in many diseases. Further research and educational and legislative initiatives are needed to curtail this risk. © 2005 Elsevier Inc. All rights reserved.

Keywords:

Socioeconomic status; Diet quality; Dietary intake

Introduction

Socioeconomic status (SES) is one of the most powerful predictors of health status and mortality worldwide [1–4]. High-risk health behaviors are more common in persons of low SES (LSES). The excess mortality and morbidity associated with LSES have commonly been attributed to high-risk health behaviors including diet, smoking, lack of physical activity, and obesity [1–5].

In several studies, food consumption patterns and nutrient intakes have been more consistent with current dietary

guidelines among people of high SES (HSES) [6–16]. Persons of HSES reported eating more whole meal and brown bread, more fresh fruits and vegetables, and less fatty milk, eggs, and meats [11–13]. HSES has also been associated with lower intakes of fat, saturated fat, and refined sugar and a higher intake of dietary fibers [9,10,12,13]. However, the differences in nutrient intake levels are quite small [10,12] and in Nordic countries SES differences in food consumption have been more evident than have differences in nutrient intake [17], most likely due to a within-food group shift in consumption.

Diet quality as measured by intake of micronutrients was shown to be better among HSES communities [9,18–20]. In a study conducted in Jerusalem, Israel [21], a lower intake of vitamins was found among LSES groups. In the Scottish

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Heart and Health Study [9] and other studies [19], lower antioxidant vitamin intake was common to LSES. The low intake was explained by the less frequent consumption of fresh fruit and vegetables, a finding repeated in several other studies in Europe [18].

We conducted a comprehensive and detailed food and nutrient survey in the Negev area, which is located in the South of Israel. We specifically chose this region because it differs considerably from Europe and the United States in terms of food availability and cost. In Israel seasonal fruits and vegetables are widely available throughout the country and their cost may be as low as \$0.3/kg. Fruits and vegetables are also of high quality because farms and plantations are spread in all regions, making transportation time shorter. In addition, fruits and vegetables are part of many traditional ethnic dishes of several origin groups in the Negev area [22,23]. In contrast, prices of meat, especially beef, are high, ranging from \$6 to \$15/kg. The Negev is characterized by a mixed population with a relatively large percentage of new immigrants from the former Soviet Union and extreme differences in SES including cities with the second highest SES score in the country and those with the lowest SES score, as defined by the social security administration [24].

In this study we measured differences in dietary intake across SES groups in Israel in terms of food and nutrient intake.

Materials and Methods

Negev nutritional study

A random, proportional cluster sample of the Negev population in Israel was obtained from voter register lists of the Jewish population older than 35 y. The age of 35 y was chosen as the lower cutoff due to the assumption that people 35 y and older tend to have a steadier lifestyle and therefore a steadier diet than younger persons. The same approach has been used in other studies [25,26]. Of the total sample we included for this study all participants from HSES cities ($n = 116$) and 206 participants from LSES cities. A report by the social security office [24] based on several criteria, including living arrangements, size of the family etc., defined the cities of Ofakim, Dimona, and Sederot as the lowest for their SES, whereas Omer, Meitar, and Lehavim were ranked in the highest 10 SES cities in the country according to the social security office data [24]. The mean monthly incomes per person were \$2300 in the HSES area and \$950 in the LSES area based on social security office data [24].

The HSES cities are three residential communities populated by highly skilled, affluent families. Residents in these communities work in the high-tech industry, academics, business, health services, and government. The LSES cities are composed mainly of working class families with high

rates of unemployment, single parenthood, and need for welfare ($>12\%$ in each city).

Further analysis was obtained to verify whether the groups were representative of their cities. In a subsample of study participants we conducted a telephone survey with 58 participants from LSES and 52 from HSES communities. More than 95% of LSES participants versus fewer than 16% of HSES participants earned less than the average income in Israel.

Demographic anthropometrics and health characteristics

We obtained demographic characteristics by using questions regarding age, place of birth, date of immigration to Israel, and number of school years completed. Body mass index (BMI) was calculated from reported weight and height. Approximately 25% of interviewees were reinterviewed within 2 to 4 wk, each on a different day of the week with measured weight and height. The first interview was used in the analysis because no significant difference was found between the two assessments in dietary intake or in weight and height measurements. Participants were asked about chronic diseases by choosing from a list and asking the participants, “Has a doctor told you that you have a certain chronic disease (for example, diabetes)?” After a positive answer, participants were questioned regarding therapies and office visits for the condition. The number of years since immigration to Israel was compared between the groups, with particular attention to immigrants from the former Soviet Union after 1990 (new immigrants). Based on our previous work on origin groups concerning differences in dietary intake [23], we added years since immigration into the analysis.

Dietary assessment

Participants were interviewed at home regarding their dietary intake using an adapted multiple-pass United States Department of Agriculture (USDA) 24-h recall questionnaire [27] with additional questions that addressed general health and eating habits. The questionnaire was repeated within 2 wk for 138 (42.8%) of the participants. The results from the first interview were used in the analysis because no significant difference was found between the two assessments. In addition, the mean daily nutrient intake was compared between the groups and with the dietary reference intakes [28]. Daily intake was monitored by requesting participants to rank their intake on the day of the interview as “usual,” “less,” or “more” than their usual intake.

The data entry system has been described in detail [22]. In brief, data entry of the 24-h questionnaires was performed by using a program conceptually similar to the Food Intake Analysis System [29]. Israeli food products were added, codes were assigned according to the USDA coding system [30,31], and weight per volume was calculated for each product.

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