Chapter Five

Health-Related Behaviors

This chapter presents information on health-related behaviors of school-age children. Topics covered include physical activity, television viewing, and consumption of alcohol and tobacco. In addition, data are presented on the extent to which other household members exposed school-age children to second-hand smoke as a result of cigarette smoking.

Data on physical activity were collected only from children 8 to 16 years old. Data were provided by the children themselves, rather than by parents/caregivers, in a private interview that was completed as part of their visit to the MEC (MEC-Youth Interview). Children who were 17 and 18 completed the Household Adult Interview which included an entirely different set of physical activity questions; these data were not tabulated for this report. Information on television viewing was collected only for children 5 to16 years of age. These data were provided by parents and caregivers, as part of the Household Youth Interview. The Household Adult Interview, completed by 17- and 18-year-olds, did not include questions about television viewing. Collection of data on alcohol and tobacco consumption varied by age (12 and older for alcohol and 8 and older for tobacco). Finally, data on second-hand smoke exposure were collected for all school-age children (5-18 years).

Physical Activity

The *Healthy People 2010* goals for physical activity among children and adolescents call for moderate physical activity 5 days per week, for at least 30 minutes each time, and vigorous physical activity that enhances cardiovascular health 3 days per week, for at least 20 minutes each time (U.S. DHHS, 2000a). NHANES-III data on physical activity are not detailed enough to assess compliance with these goals because the data do not include information on the amount of time spent being active.[1] Nonetheless, the available data provide useful insights about physical activity patterns of school-age children.

Children 8 to 16 years were asked to report the number of times per week they "play[ed] or exercise[d] enough to make [them] sweat and breathe hard." Responses to this question can be viewed as reasonably indicative of the frequency of vigorous physical activity.

Overall, 8-16-year-olds reported engaging in vigorous physical activity an average of 4.7 times per week (table D-80). Children in the lowest-income group engaged in vigorous physical activity less often than children in the higher-income group (4.5 times per week vs. 4.9). This difference was concentrated among females (4.0 times per week vs. 4.4 times). This pattern was observed for 11-13-year-old and 14-16-year-old females, but not for 8-10-year-old females. Among 14-16-year-old females, the frequency of vigorous physical activity in the lowest-income group was also significantly lower than the low-income group (3.3 times per week vs. 4.2 times).

Reported levels of physical activity were examined separately for children who were at a healthy weight and those who were overweight (BMI-for-age at or above the 95th percentile; see Chapter Four) or at risk of becoming overweight (BMI-for-age between the 85th and 95th percentiles). Among healthy weight children,

[1] *Healthy People 2010* used data from the Youth Risk Behavior Surveillance System (YRBSS), rather than NHANES-III, to establish baselines for goals related to physical activity among youth, and will use YRBSS data to monitor trends in this area over time (U.S. DHHS, 2000a).

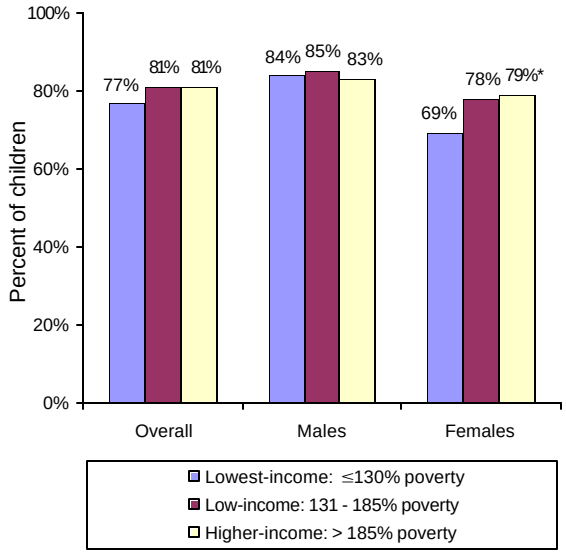
there were few statistically significant differences, on average, between children in the lowest-income group and those in the two other income groups in the reported frequency of vigorous physical activity (table D-81).

In addition, no significant between-group differences were observed, overall, among children who were overweight or at risk of becoming overweight. However, significant between-group differences were observed for overweight/at-risk females 8 to 13 years of age. Among 8-10-year-old females who were overweight/at-risk, those in the lowest-income group reported *greater* frequency of vigorous physical activity, on average, than those in the low-income group (table D-81). Among 11-13-year-old females who were overweight/at-risk, the trend was reversed. In this cohort, the reported frequency of vigorous physical activity for the lowest-income group was significantly *lower* than the reported frequency for either of the other two income groups. Individual point estimates for most of the subgroups are unreliable, but the differences between income groups are statistically significant.

Percent of Children Engaging in Vigorous Physical Activity at Least Three Times per Week

Eighty percent of all children reported that they engaged in vigorous physical activity at least 3 times per week (table D-82). Overall, there were no significant differences between income groups on this measure (figure 36). As noted in preceding discussion, however, there were significant between-group differences in vigorous physical activity among females. In comparison with the higher-income group, a significantly smaller percentage of females in the lowest-income group reported vigorous physical activity 3 or more times per week (69% vs. 79%). This difference was concentrated among 11-13-year-olds and, in this age cohort, the difference between the lowest-income and low-income groups was also statistically significant (table D-82).

Figure 36—Percent of 8-16-year-olds with vigorous physical activity at least three times per week by gender

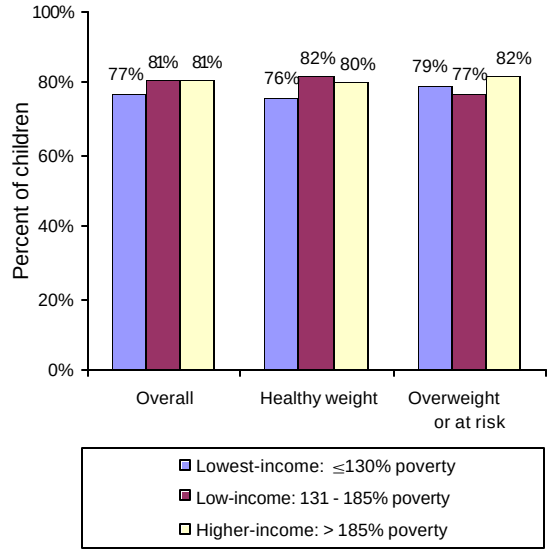


*Statistically significant difference from lowest-income group at the .05 level or better.

Source: NHANES-III, 1988-94.

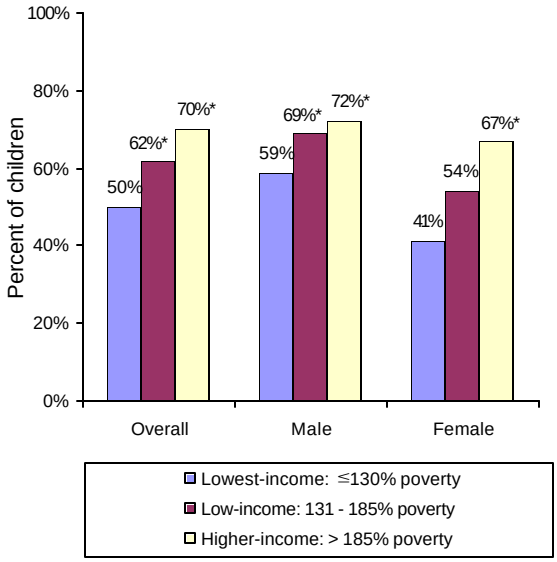
Overall, there were no significant differences between income groups in the percentage of healthy weight and overweight/at-risk school-age children who engaged in vigorous physical activity 3 or more times per week (figure 37). Significant between-group differences were observed among females, however (table D-83). Among healthy weight females, the lowest-income group was significantly less likely than the higher-income group to engage in vigorous physical activity 3 or more times per week (69% vs. 79%). In addition, among 11-13-year-old females who were overweight or at-risk of overweight, the lowest-income group was significantly less likely than either the low-income or higher-income groups to engage in vigorous physical activity 3 or more times per week.

Figure 37—Percent of 8-16-year-olds with vigorous physical activity at least three times per week by weight status



No statistically significant differences between income groups.
Source: NHANES-III, 1988-94.

Figure 38—Percent of 8-16-year-olds participating in organized exercise programs or sports teams by gender



*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.

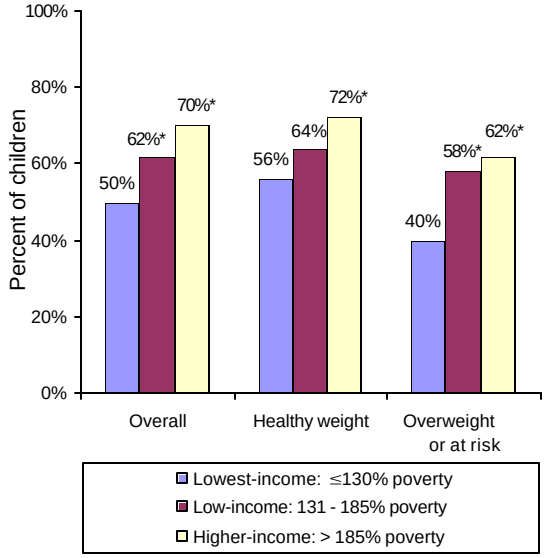
Participation in Organized Exercise Programs or Sports Teams

Organized exercise programs and sports teams are one mechanism for increasing children's physical activity. NHANES-III data reveal that school-age children in the lowest-income group were less likely than those in either of the other income groups to be involved in team sports or other organized physical activities (figure 38 and table D-84). Overall, 50 percent of children in the lowest-income group were involved in such activities, compared with 62 percent of children in the low-income group and 70 percent of children in the higher-income group. This pattern was observed for both males and females; however, the difference between the lowest-income group and the low-income group was statistically significant only for males. In age-group-specific analyses, significant differences were observed between the lowest-income group and the higher-income group for all three age groups, overall and for females (table D-84). For males, between-group differences were significant only in the aggregate analysis.

Among 8-16-year-old children who were at a healthy weight there was no difference between the lowest-income group and the low-income group in the percentage of children who participated in organized exercise programs or sports teams (figure 39 and table D-85). In comparison with the higher-income group, however, healthy weight school-age children in the lowest-income group were significantly less likely to participate in organized physical activities (56% vs. 72%). This pattern was observed for females, but not for males (table D-85).

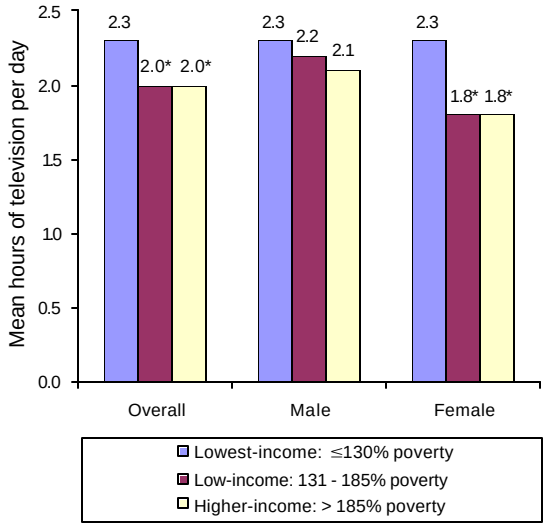
Among school-age children who were overweight or at risk of overweight, children in the lowest-income group were significantly less likely to participate in organized physical activities than children in either the low-income or higher-income groups (40% vs. 58% and 62%) (figure 39). This pattern was observed for both males and females. However, in both of the gender-specific analyses, only the difference between the lowest-income and higher-income groups was statistically significant (table D-85).

Figure 39—Percent of 8-16-year-olds participating in organized exercise programs or sports teams by weight status



*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.

Figure 40—Mean hours of television watched per day by 5-16-year-olds



*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.

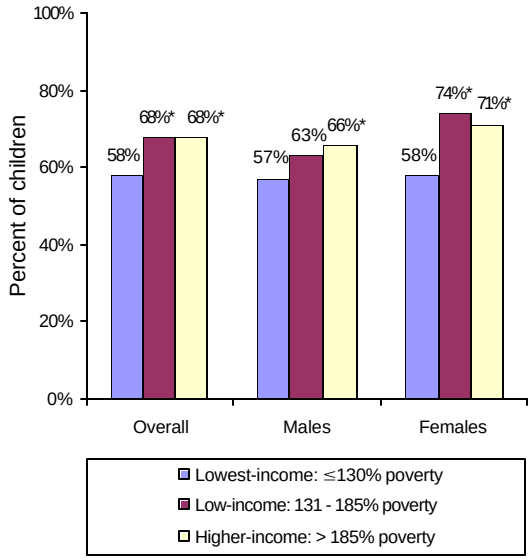
Television Viewing

On average, 5-16-year-olds in the lowest-income group spent significantly more time watching television than comparably aged children in either of the other income groups. Children in the lowest-income group watched an average of 2.3 hours of television per day, compared with 2.0 hours for children in the other two income groups (figure 40 and table D-86). As shown in figure 40, this difference was concentrated among females.

The age-specific analyses indicate that the difference for females were concentrated among females under the age of 14. Among 5-10-year-old females, the lowest-income group watched an average of 2.3 hours of television per day, compared with 1.8 hours and 1.6 hours for the low- and higher-income groups, respectively (table D-86). Among 11-13-year-old females, the lowest-income group watched 2.6 hours of television per day, compared with 2.0 hours for the other two income groups. In essence, television-viewing habits of the younger females in the lowest-income group mirror those of their male counterparts, while younger females in the other income groups watch less television than their male counterparts.

Healthy People 2010 objectives for children and adolescents call for limiting television viewing to no more than 2 hours per day (U.S. DHHS, 2000a). Overall, children in the lowest-income group were less likely than children in either of the other income groups to meet this goal. Fifty-eight percent of children in the lowest-income group watched no more than 2 hours of television per day, compared with 68 percent of children in the other two income groups (figure 41 and table D-87). This general pattern was observed for both males and females; however, among males, the difference between the lowest-income group and the low-income group was not statistically significant. For both males and females, significant between-group differences were concentrated among 5-10-year-olds.

Figure 41—Percent of 5-16-year-olds watching no more than 2 hours of television per day



*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.

Findings observed for the total population of 5-16-year-old children were generally true for healthy weight children examined separately (tables D-88 and D-89). In contrast, among children who were overweight or at risk of becoming overweight, there were no significant between-group differences in the mean number of hours of television watched per day or in the percentage of children who watched no more than 2 hours of television per day. In all three income groups, the percentage of overweight and at-risk children whose television viewing habits were consistent with the *Healthy People 2010* 2-hour maximum was notably lower than the percentage of healthy weight children (statistical significance of weight-based differences not tested). Overall, 68 percent of healthy weight children watched no more than 2 hours of television per day, compared with 55 percent of children who were overweight or at risk of becoming overweight (table D-89).

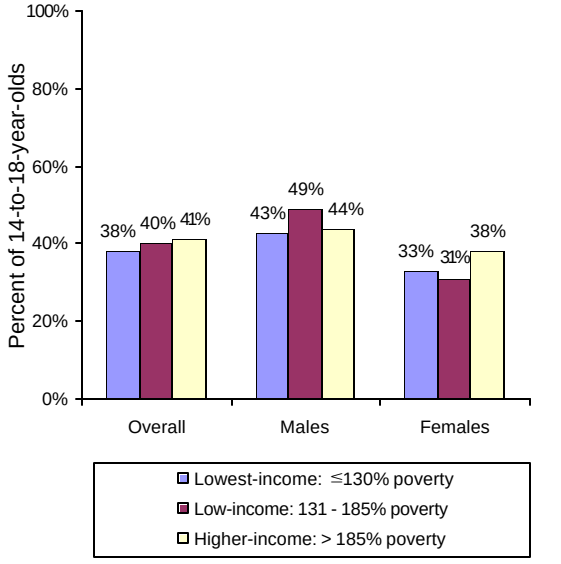
Alcohol Consumption

Children 12 and older were asked about alcohol consumption as part of the private MEC-Youth interview. Children between the ages of 17 and 18 provided this information as part of the Household Adult Interview. All respondents were asked whether they had consumed a total of 12 alcoholic beverages in their lifetime and over the past year.

Overall, 28 percent of children in this age range reported consuming at least 12 alcoholic beverages in their lifetime (table D-90). Alcohol consumption was low among 12- and 13-year-olds—only 9 percent of children in this age group reported that they had consumed at least twelve alcoholic beverages in their lifetime. In contrast, roughly 4 out of 10 14-18-year-olds reported this level of alcohol consumption (statistical significance of age-based differences not tested). There were no significant differences between income groups in reported lifetime alcohol consumption, as illustrated for 14-18-year-olds in figure 42.

Fourteen percent of all 12-18-yearolds reported consuming 12 or more alcoholic beverages during the past year (table D-91). Again, the

Figure 42—Percent of 14-18-year-olds who have consumed at least 12 alcoholic beverages in their lifetime



No statistically significant differences between income groups.
Source: NHANES-III, 1988-94.

percentage reporting this level of alcohol consumption was lower for 12- and 13-year-olds than for 14-18-year-olds. The only significant between-group difference in recent alcohol consumption was observed among 14-18-year-old females. In this age group, females in the lowest-income group were less likely than females in the higher-income group to have consumed 12 or more alcoholic drinks during the past year (14% vs. 23%).

Tobacco Use

Children over the age of 8 were asked about tobacco use as part of the private MEC-Youth interview. Seventeen- and 18-year-olds answered questions about tobacco use as part of the Household Adult Interview. The prevalence of tobacco use was very low among children under the age of 14. No children between the ages of 8 and 10 reported having used tobacco and only 1.4 percent of 11-13-year-olds reported tobacco use (data not shown). Consequently, the tabulations prepared for this report were limited to 14-18-year-olds.

Overall, 13 percent of 14-18-year-olds reported smoking 100 or more cigarettes (equivalent to 5 or more packs) in their lifetime and 16 percent reported smoking cigarettes during the past 5 days (table D-92). Only one significant between-group difference was detected for these measures. Males in the lowest-income group were significantly more likely than those in the low-income group to have smoked cigarettes during the preceding five days (table D-92; point estimate for the low-income group is statistically unreliable).

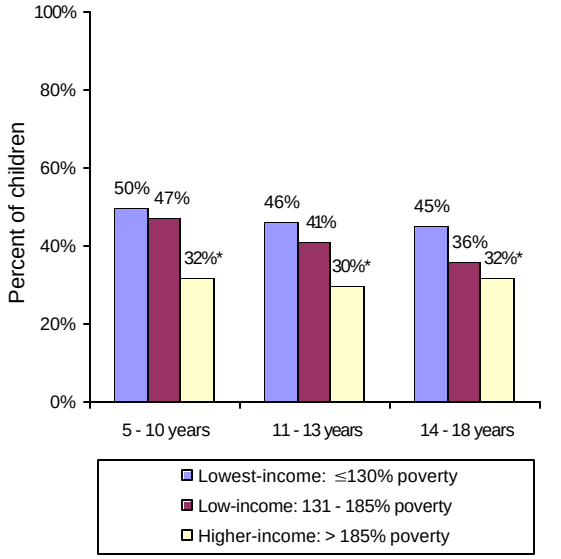
Among 14-18-year-olds who reported smoking during the past 5 days, the mean number of cigarettes smoked, in total, was about 33, or slightly more than a third of a pack (or 6.6 cigarettes) per day. The mean age at which smoking began was 13.3 years. Smokers in the lowest-income group started smoking at a significantly younger age, on average, than those in the low-income group. This pattern was noted for both males and females (table D-92; point estimates for all subgroups are statistically unreliable).

Exposure to Second-Hand Smoke

For all sample members, NHANES-III collected data on the number of smokers living in the household and the number of cigarettes smoked by those individuals. These data indicate that nonsmoking school-age children (5 to 18 years) in the lowest-income group were more likely than nonsmoking school-age children in the higher-income group to be exposed to second-hand smoke produced by other household members (table D-93). This was true for males and for females, and for all three age groups (figure 43). There was some variation among gender-and-age-specific subgroups (table D-93).

In addition, based on the number of cigarettes smoked by household smokers, nonsmoking

Figure 43—Percent of nonsmoking school-age children exposed to cigarette smoke at home



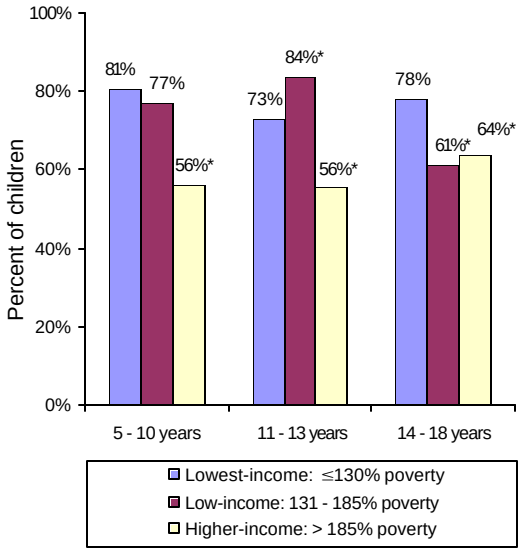
*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.

school-age children in the lowest-income group who resided in smoking households had a greater degree of exposure to second-hand smoke than their counterparts in the higher-income group. On average, smokers in the lowest-income households smoked 19 cigarettes per day, compared with 15 cigarettes per day for smokers in the higher-income households (table D-94). This pattern was noted for both males and females, although the difference was not statistically significant among females. The between-group difference was also noted for virtually all gender-and-age-specific subgroups and most of the differences were statistically significant.

Differences in exposure to second-hand smoke between nonsmoking school-age children in the lowest- and higher-income groups were borne out in high serum cotinine levels. Cotinine, a breakdown product of nicotine, is used as a biological marker for tobacco use and exposure to environmental tobacco smoke. NHANES-III measured serum cotinine in all respondents 4 years and older.

Nonsmoking school-age children in the lowest-income group were significantly more likely to have high serum cotinine levels than nonsmoking children in the higher-income group. This difference was noted for all three age groups (figure 44) and for most gender-and-age-specific subgroups (table D-95). The difference was most substantial for 5-10-year-olds, where there was a 24-percentage-point difference between the lowest-income group and the higher-income group (81% vs. 56%). Among 14-18-year-olds, children in the lowest-income group were also more likely than children in the low-income group to have high levels of serum cotinine (78% vs. 61%). Among 11-13-year-olds, however, the relationship between these two income groups was reversed. In this subgroup, children in the lowest-income group were *less* likely than

Figure 44—Percent of nonsmoking school-age children with high serum cotinine levels



*Statistically significant difference from lowest-income group at the .05 level or better.
Source: NHANES-III, 1988-94.