Chapter Five

Health-Related Behaviors

This chapter presents information on health-related behaviors of FSP participants and nonparticipants. Topics covered include breastfeeding and other infant feeding practices, physical activity, television viewing (among children), and consumption of alcohol and tobacco.

Breastfeeding and Other Infant Feeding Practices

NHANES-III included, for women who had given birth during the preceding 2 years, a series of questions about breastfeeding. For infants and children under the age of 6 years, a detailed set of questions on infant feeding practices was included. These questions asked about initiation and duration of breastfeeding, use of formula and cow's milk, use of baby bottles, and introduction of solid foods. All of these data are summarized in the sections that follow.

Initiation and Duration of Breastfeeding

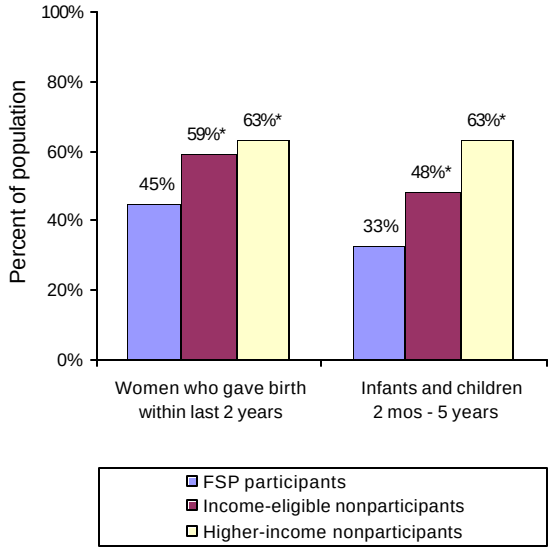
The *Healthy People 2010* goals recognize that breastmilk is the optimal source of nutrition for infants (U.S. DHHS, 2000a). Goals have been established for the proportion of infants breastfed during the early neonatal period (75%), the proportion breastfed for up to 6 months (50%), and the proportion breastfed for at least a year (25%).

At the time the NHANES-III data were collected, the prevalence of breastfeeding for the population as a whole fell short of the *Healthy People 2010* goals. Overall, 58 percent of women who had given birth during the preceding 2 years breastfed their infant for at least some period of time (table D-120). In addition, 54 percent of infants and children under 6 were breastfed (table D-121).

Among women who had given birth within the preceding 2 years, FSP participants were significantly less likely than either income-eligible nonparticipants or higher-income nonparticipants to have breastfed their infant(s) (figure 40 and table D-120). Forty-five percent of the FSP participants in this group breastfed their babies for some period of time, compared with 59 percent of income-eligible nonparticipants and 63 percent of higher-income nonparticipants.

Similarly, FSP infants and children under the age of 6 were significantly less likely to have ever been breastfed than either income-eligible or higher-income nonparticipant infants and children (33% vs. 48% and 63%) (figure 40 and table D-121). This pattern was observed for every age

Figure 40—Prevalence of breastfeeding



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

cohort. However, differences between FSP participants and income-eligible nonparticipants were not statistically significant for 2-year-olds and 5-year-olds.

Among infants and children who had been breastfed, the percentage breastfed for at least 6 months was less than the goal outlined in *Healthy People 2010* (U.S. DHHS, 2000a). The same was true for the percentage breastfed for a year or more. As noted above, *Healthy People 2010* includes goals of 50 percent for infants breastfed for at least 6 months and 25 percent for infants breastfed for at least a year. According to caregiver reports, 42 percent of infants and children 7 months to 5 years were breastfed for at least 6 months (table D-122) and 17 percent of children 1 to 5 years were breastfed for a year or more (table D-123).

FSP infants and children were significantly less likely than either group of nonparticipants to have been breastfed for at least 6 months (36% vs. 43-44%) (table D-122). There were no significant differences between groups in the percentage of children who were breastfed for a year or more (table D-123) or in the mean duration of breastfeeding (table D-124). On average, all three groups were breastfed for about 26 weeks.[1]

Use of Supplemental Formula Among Breastfed Infants

Among infants and children who were ever breastfed, only 17 percent never received supplemental formula (table D-125). On average, formula was first introduced at about 12 weeks of age (table D-126).

While there were no significant differences, overall, between FSP participants and either group of nonparticipants on either of these measures, significant differences were noted for the youngest breastfed infants (2-6-month-olds and 7-11-month-olds). In these cohorts, those for which caregivers' reports are likely to be most accurate, breastfed FSP infants were significantly more likely than breastfed infants in either the income-eligible or higher-income nonparticipant groups to have received supplemental infant formula (table D-125). Sample sizes were too small to produce reliable point estimates for FSP infants and income-eligible infants, but there was a statistically significant difference between FSP participants and each group of nonparticipants in the prevalence of the behavior.

In addition, among infants and 2-year-olds, breastfed FSP participants were first fed formula on a daily basis at a significantly earlier age than breastfed higher-income nonparticipants (table D-126). The difference ranged from about 2 weeks for 2-6-month-olds (4.0 weeks vs. 6.1 weeks) to about 4 weeks for 2-year-olds (10.3 weeks vs. 14.3 weeks).

Use of Cow's Milk Before 12 Months of Age

Infant feeding experts recommend that cow's milk not be introduced until infants have reached their first birthday (American Academy of Pediatrics, 2003 and USDA/FNS, 2003c). The rationale for this recommendation is that, relative to infants' special nutritional needs, cow's milk is low in iron and other essential nutrients and high in protein, sodium, and potassium. In addition, the type of protein and fat found in cow's milk may be difficult for infants to digest and absorb.

At the time the NHANES-III data were collected, many parents and caregivers did not adhere to this recommendation. Across all age groups, 36 percent of infants and children under the age of 6 were fed cow's milk on a daily basis before 12 months of age (table D-127). The mean age at which cow's milk was first introduced was 44.3 weeks or about 10.5 months (table D-128).

[1]Mean duration of breastfeeding was not tabulated for infants because some infants were still breastfeeding.

Overall, there were no significant differences between FSP participants and either group of nonparticipants on either of these measures.

Use of a Baby Bottle

It is recommended that infants be fed beverages from cups rather than bottles as soon as they are able to sit erectly on their own. Infants can generally drink from a cup, with assistance, by 4–6 months and can hold a cup on their own by 10–12 months (American Academy of Pediatrics, 2003 and USDA/FNS, 2003c). A major reason for discouraging prolonged use of baby bottles is that it increases the risk of tooth decay, resulting in a syndrome known as "baby-bottle-caries" in which infant teeth are excessively decayed (American Academy of Pediatrics, 2003 and USDA/FNS, 2003c). In extreme cases, underlying permanent teeth may also be affected. Another concern is that infants who consume too much formula or other beverages from a bottle may crowd out other essential nutrients found in solid foods.

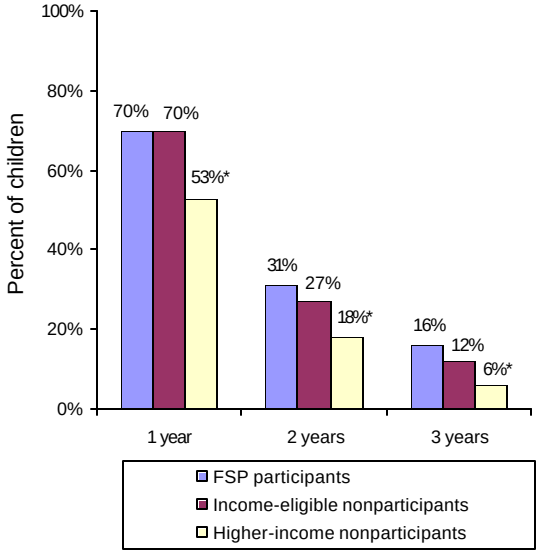
The vast majority of infants and children (96%) used a baby bottle at some point in time (table D-129). FSP participants were significantly more likely than higher-income nonparticipants to have used a baby bottle (97% vs. 95%). Differences were concentrated among 7-11-month-olds and 1-year-olds, and may be related to the higher rate of breastfeeding among higher-income nonparticipants.

In all three groups, more than 92 percent of infants younger than 1 year of age were using baby bottles at the time data were collected (table D-130). The percentage of 7-11-month-olds who were using bottles was significantly higher for FSP participants than for either group of nonparticipants (the point estimate for FSP participants is statistically unreliable).

At about a year of age, there was a noteworthy decline in use of baby bottles. Overall, 60 percent of 1-year-olds were using a bottle. This percentage decreased to 23 percent for 2-year-olds and to 10 percent and 4 percent for 3- and 4-year-olds, respectively. This general pattern was noted for all three groups of children. However, in comparison with higher-income children, the rate of decline was significantly slower for FSP children. Among 1-4-year-olds, the percentage using a baby bottle was significantly greater for FSP participants than for higher-income nonparticipants at each year of age (figure 41 and table D-130). Among 4-year-olds, the difference between FSP participants and income-eligible nonparticipants was also statistically significant. (Data for 4-year-olds are not shown in figure 41 because the point estimates for both groups of nonparticipants are statistically unreliable).

Among children who were no longer using a baby bottle, there were no significant differences between FSP participants and either group of nonparticipants in the percentage of children who stopped using a bottle before 1 year of age

Figure 41—Percent of children 1-3 years still using a baby bottle



*Statistically significant difference from FSP participants at the .05 level or better. Four-year-olds are not shown because point estimates are statistically unreliable for both nonparticipant groups.
Source: NHANES-III, 1988-94.

(table D-131) or in the mean age at which baby bottles were discontinued (table D-132).

Introduction of Solid Foods

Recommended infant feeding practices suggest that solid foods be introduced as children become physically and physiologically able to handle these foods. Signs of readiness include the ability to sit erectly in a supported position (for example, in a high chair), to draw in the lower lip when being fed with a spoon, to swallow food rather than reflexively push it out with the tongue, and to express satiety (American Academy of Pediatrics, 2003 and USDA/FNS, 2003c). These developmental milestones usually occur between 4 and 6 months of age. Consequently, infants should generally not receive solid foods until at least 4 months of age.

The available data suggest that parents of FSP infants and children were more likely to adhere to this guideline than parents of either income-eligible nonparticipants or higher-income nonparticipants (table D-133). According to parent reports, 20 percent of FSP infants and children 2 months to 5 years received solid foods before the age of 4 months, compared with 24 percent of both income-eligible and higher-income infants and children.

The mean age at which solid foods were introduced was 6.3 months for FSP infants and children, 5.8 months for income-eligible infants and children (difference was not statistically significant), and 5.3 months for higher-income infants and children (difference was statistically significant) (table D-134).

Physical Activity Among Children and Adolescents

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 (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.[2] Nonetheless, the available data provide useful insights about physical activity patterns of children and adolescents.

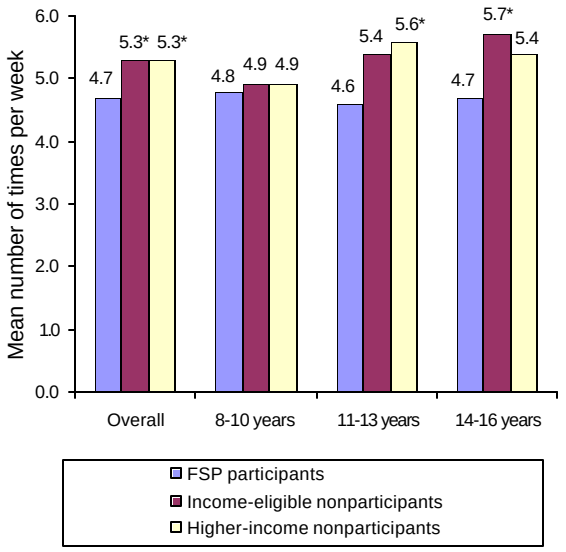
Children and adolescents 8 to 16 years were asked to report the number of times per week they "play[ed] or exercise[d] enough to make [them] sweat and breathe hard." Responses to this question can be viewed as reasonably indicative of the amount of vigorous physical activity engaged in by children and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

Overall, children and adolescents reported engaging in vigorous physical activity an average of 4.7 times per week (table D-135). Results for FSP children and income-eligible nonparticipant children were comparable, at 4.4 and 4.6 times per week. However, the reported frequency of vigorous physical activity was significantly lower for FSP children than for higher-income children (4.4 times per week vs. 4.8 times per week). This difference was concentrated among 11-13-year-olds (4.3 times vs. 5.1 times), and among males (4.7 times vs. 5.3 times). Among males, the difference between FSP participants and income-eligible nonparticipants was also statistically significant (figure 42). This difference was concentrated among 14-16-year-olds.

The frequency of vigorous physical activity was examined separately for children who were at a healthy weight and children who were overweight (BMI-for-age at or above the 95th percentile; see Chapter Four) or at risk of

[2] *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).

Figure 42—Frequency of vigorous physical activity among males 8-16 years



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

becoming overweight (BMI-for-age between the 85th and 95th percentiles). Among healthy weight children, there were few statistically significant differences between FSP participants and nonparticipants in the frequency of vigorous physical activity (table D-136). The only significant difference noted was that healthy weight FSP participants between 11 and 13 reported significantly less vigorous physical activity per week than comparably aged healthy weight higher-income nonparticipants (4.4 times vs. 5.0 times). This difference was concentrated among males.

Among children who were overweight or at risk of being overweight, differences between FSP participants and nonparticipants were more pronounced. FSP children who were overweight or at risk of being overweight engaged in vigorous physical activity an average of 4.3 times per week, compared with 5.0 times per week for both income-eligible and higher-income nonparticipants. These differences were statistically significant and were primarily due to differences among 11-13-year-olds and among males.

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

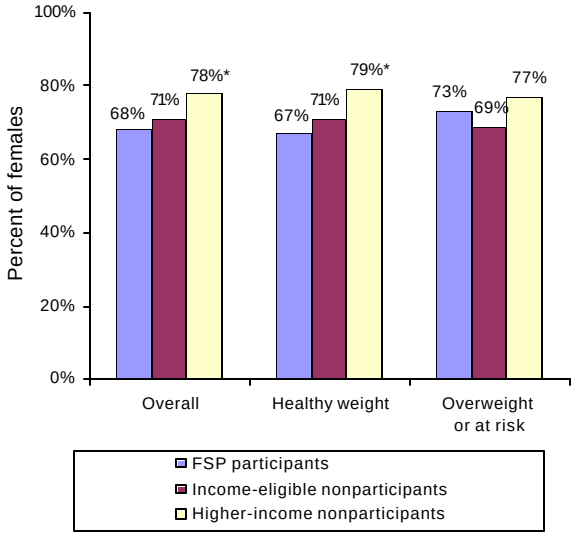
Eighty percent of all children reported that they engaged in vigorous physical activity at least three times per week (table D-137). The percentage of males reporting this level of physical activity was greater than the percentage of females (84% vs. 75%) (statistical significance of gender-based difference not tested).

About three-quarters of FSP children reported vigorous physical activity at least three times per week, compared with 80 percent of income-eligible nonparticipants (difference was not statistically significant) and 81 percent of higher-income nonparticipants (difference was statistically significant). This overall pattern was observed for both males and females; however, the significance of between-group differences was not consistent. Among males, the difference between FSP participants and income-eligible nonparticipants was statistically significant (80% v. 89%). Among females, the difference between FSP participants and higher-income nonparticipants was statistically significant (68% vs. 78%).

Among children who were at a healthy weight, there were no significant between-group differences, overall, in the percentage of individuals reporting vigorous physical activity at least three times per week (table D-138). This was also true for males analyzed separately. Among healthy weight females, however, FSP participants were significantly less likely than higher-income nonparticipants to report engaging in vigorous physical activity three or more times per week (67% vs. 79%) (figure 43).

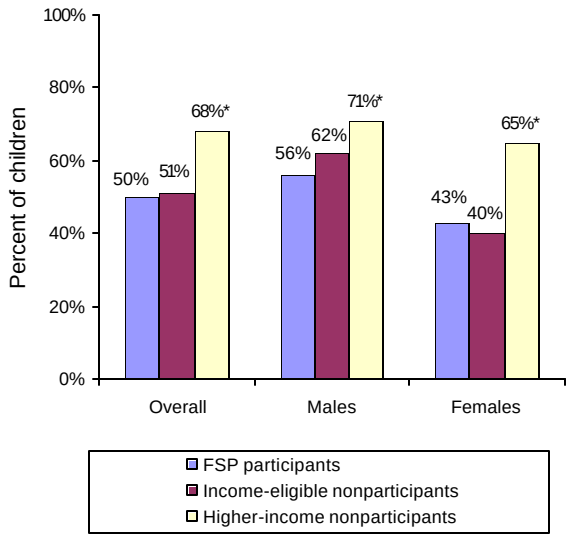
Among children who were overweight or at risk of becoming overweight, there were no overall differences between FSP participants and either group of nonparticipants in the percentage of children who reported vigorous physical activity

Figure 43—Percent of females 8-16 years exercising vigorously at least three times per week



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

Figure 44—Percent of children 8-16 years participating in organized exercise programs or sports teams



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

three or more times per week. This was true for the overall population (figure 43), as well as for males and females analyzed separately (table D-138).

Participation in Organized Exercise Programs or Sports Teams

Organized exercise programs and sports teams are one mechanism for increasing children's physical activity. There were no significant differences between FSP children and income-eligible children in the percentage of individuals who were involved in team sports or other organized exercise programs during the past year. Overall, about half of all children in each group were involved in such activities (table D-139).

In comparison with higher-income children, however, FSP children were less likely to be involved in team sports or other organized exercise programs (50% vs. 68%). This pattern was noted for both males and females (figure 44) and for both healthy weight and overweight/at-risk children (table D-140). An exception was noted for male children who were at a healthy weight. In this cohort, the difference between FSP participants and higher-income nonparticipants was not statistically significant.

Television Viewing Among Children and Adolescents

NHANES-III collected information on the television-viewing habits of children between the ages of 5 and 16. The data reveal that children participating in the FSP spend about the same amount of time watching television as income-eligible nonparticipant children—an average of more than 2 hours per day (table D-141). Higher-income children, however, watch significantly less television, on average, than FSP children. Higher-income males spend about 18 minutes less per day in front of the television than their FSP participant counterparts. Higher-income females spend about 35 fewer minutes per day watching television than FSP females.

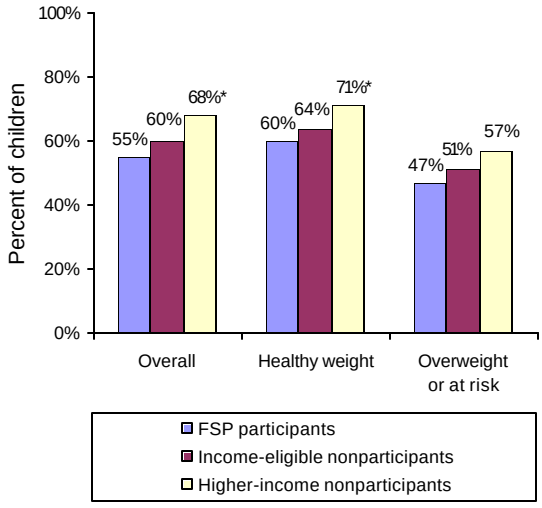
Healthy People 2010 recommends that children's television viewing be limited to 2 hours or less per day. Overall, the percentage of FSP

children who met this goal was lower than the percentage of children in either group of nonparticipants (55% vs. 60% and 68%) (figure 45 and table D-142). However, only the difference between FSP participants and higher-income nonparticipants was statistically significant. This pattern was observed for both males and females.

In comparison with healthy weight children, children who were overweight or at risk of becoming overweight watched more television. Healthy weight children watched an average of 2.0 hours of television per day, compared with 2.3 hours per day for overweight/at-risk children (table D-143). Similarly, 68 percent of healthy weight children watched 2 hours or less of television per day, compared with 55 percent of overweight/at-risk children (table D-144) (statistical significance of weight-based differences not tested). These patterns were noted for both males and females.

Among healthy weight children, between-group differences in television viewing mirrored those observed for the total population. Healthy weight FSP children watched significantly more television than healthy weight children in the higher-income nonparticipant group (2.2 hours vs. 1.9 hours) (table D-143). Healthy weight FSP children were also significantly less likely than healthy weight higher-income children to watch 2 or fewer hours of television per day (60% vs. 71%) (figure 45 and table D-144). Among children who were overweight or at risk of overweight, there were no significant between-group differences in television viewing habits.

Figure 45—Percent of children 5-16 years watching 2 hours or less of television per day



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

Physical Activity Among Adults

Increasing leisure-time physical activity among adults is one of the *Healthy People 2010* goals in the area of physical activity (U.S. DHHS, 2000a). Specific goals call for decreasing the percentage of adults who engage in no leisure-time activity and increasing the percentage of adults who participate in moderate and vigorous physical activity. As discussed below, NHANES-III data lack sufficient information to evaluate compliance with *Healthy People 2010* goals for vigorous and moderate activity.[3] However, the available data provide some information about the extent to which adults participate in specific types of physical activity.

Adult NHANES-III respondents (17 years and older) were asked to report whether they participated in a number of different physical activities during the past month and, if so, how often they engaged in the activity. The specific activities included in the query were walking a mile or more without stopping, jogging or running, riding a bike or an exercise bike, swimming, aerobics or aerobic dance, other types of dancing, calisthenics, gardening or yard work, and weight lifting. Respondents were also asked

[3]*Healthy People 2010* used data from the National Health Interview Survey (NHIS), rather than NHANES-III, to establish baselines for goals related to physical activity among adults, and will use NHIS data to monitor trends in this area over time. (U.S. DHHS, 2000a).

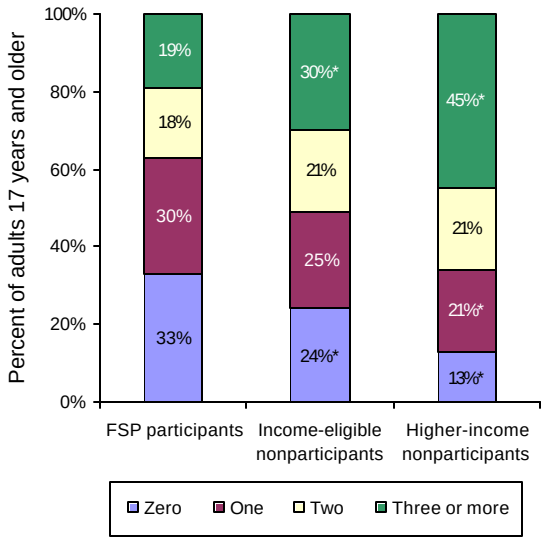
to identify any other type of physical activity they engaged in during the preceding month.

Number of Physical Activities in the Past Month

Overall, 16 percent of all persons 17 years and older reported participating in *no* physical activity during the preceding month—that is, they responded negatively to all the queried activities and didn't report any other type of physical activity (table D-145). Twenty-two percent reported participating in one activity and 21 percent reported two activities. The remaining 41 percent reported three or more activities. The percentage of individuals reporting zero activities or only one activity increased steadily as age increased, and the percentage reporting three or more activities decreased as age increased. In addition, a greater percentage of males than females reported engaging in three or more activities (44% vs. 39%) (statistical significance of age- and gender-based differences not tested).

FSP adults were significantly *more* likely to engage in no physical activities and significantly *less* likely to engage in three or more physical activities than either group of nonparticipants (figure 46 and table D-145). Overall, a third of FSP adults reported no physical activity, compared with about a quarter of income-eligible adults and 13 percent of higher-income adults. On the opposite end of the spectrum, 19 percent of FSP adults reported three or more physical activities, compared with 30 percent of income-eligible adults and 45 percent of higher-income adults. By age-group, differences between FSP participants and income-eligible nonparticipants were most frequent for the percentage of individuals reporting three or more physical activities. Significant differences between FSP adults and higher-income adults were more widespread; differences were noted at both ends of the physical activity spectrum (no activities and three or more activities) for every age cohort.

Figure 46—Distribution of adults by number of different physical activities in the past month



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

When data were examined separately for healthy weight adults and overweight/obese adults, the pattern of differences between FSP participants and nonparticipants was generally comparable to that observed for the total population. Regardless of weight status, FSP participants were *more* likely to engage in no physical activities and *less* likely to engage in three or more physical activities than either group of nonparticipants (table D-145). This general trend was also observed for both males (table D-147) and females (table D-149); however, in the gender-specific analyses, some of the differences between FSP participants and income-eligible nonparticipants did not reach statistical significance.

Walking

Data were tabulated separately for the item that asked respondents whether they had walked a mile or more without stopping at least once

during the past month. This activity was reported by more respondents than any other item on the list of queried activities (data not shown).

Overall, FSP adults were less likely than adults in either of the nonparticipant groups to have walked a mile or more without stopping at least once during the past month (table D-151). Forty-two percent of FSP adults reported doing this, compared with 46 percent of income-eligible adults and 51 percent of higher-income adults. This pattern was observed for both healthy weight adults and overweight/obese adults. Among healthy weight adults, however, the difference between FSP participants and income-eligible nonparticipants was not statistically significant. This general pattern was also observed when data were examined separately by gender (tables D-152 and D-153); however, fewer of the between-group differences were statistically significant.

Weekly Frequency of Physical Activity

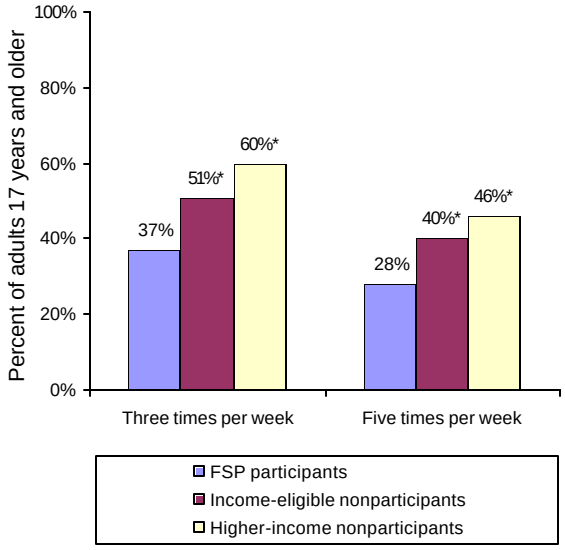
Healthy People 2010 objectives include specific goals for adults regarding frequency of vigorous and moderate activity. The goals call for regular, preferably daily, moderate activity (30 minutes per time) and vigorous activity at least three times per week (20 minutes per time).

As noted previously, NHANES-III data lack information on the duration of physical activity. The data for adults also lack adequate information on the intensity of activity. [4] For these reasons, NHANES-III data can not be used to assess adults' physical activity in light of *Healthy People 2010* goals. Instead, the available data were used to assess the percentage of older adults who engaged in any type of physical activity three or more times per week and the percentage who engaged in physical activity five or more times per week. All reported activities were included in these tabulations.

The data indicate that FSP adults were significantly less likely than adults in either of the two nonparticipant groups to be physically active at least three times per week (figure 47 and table D-154) Overall, 37 percent of FSP adults engaged in some type of physical activity at least three times per week. This compares with 51 percent of income-eligible adults and 60 percent of higher-income adults. This pattern holds for males and females as well as for healthy weight and overweight/obese adults (tables D-154 to D-156).

Results were comparable for the percentage of adults reporting physical activity five or more times per week (figure 47 and table D-157). Only 28 percent of FSP adults reported this frequency of physical activity, compared with 40

Figure 47—Percent of adults engaging in physical activity at least three times per week and five times per week



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

[4] All queried and reported physical activities were assigned intensity codes based on a standardized coding scheme used widely in physical activity research. However, these data could not be used to identify individuals whose physical activity was more or less vigorous because all respondents reporting a specific queried activity received the same intensity rating.

percent of income-eligible nonparticipants and 46 percent of higher-income nonparticipants. Again, this pattern was noted for both males and females and for both healthy weight and overweight/obese adults (tables D-157 to D-159)

Change in Level of Physical Activity Over Time

Adults 30 years and older were asked how their level of physical activity during the preceding month compared with their level of activity 10 years earlier. More than half (56%) of all adults reported that their activity level had decreased over the past 10 years (table D-160). Thirty percent said there had been no change in their level of activity and 15 percent said they were more active now than they had been 10 years ago.

There were no significant differences, overall, between FSP participants and income-eligible nonparticipants in reported change in physical activity habits over the past 10 years. In comparison with higher-income nonparticipants, however, FSP adults were *more* likely to report that their level of physical activity had decreased over the past 10 years (70% vs. 54%) and *less* likely to say their activity level had stayed the same (21% vs. 31%) or increased (9% vs. 15%). These general patterns were noted for both males (table D-162) and females (table D-164). Among healthy weight adults, differences between FSP participants and income-eligible nonparticipants were also statistically significant, with FSP participants being *more* likely than income-eligible nonparticipants to have decreased their activity (70% vs. 57%) and *less* likely to have increased their activity (7% vs. 13%) (table D-160). These differences were largely attributable to differences among females (table D-164).

Alcohol Consumption

Respondents 12 years of age and older were asked whether they had consumed at least 12 alcoholic beverages, not counting small sips, over their lifetime and during the past 12 months. Respondents who reported consuming at least 12 alcoholic drinks during the past year were asked how many drinks they consumed on an average day.

A majority (80%) of respondents reported consuming at least 12 alcoholic beverages during their lifetime (table D-166). The percentage reporting alcohol consumption increased dramatically between 12-19 years and 20-29 years (40% vs. 87%) and, after 30-39 years, decreased as age increased. Comparable patterns were observed for both males and females; however, the percentage of individuals reporting alcohol consumption was consistently greater for males than for females (statistical significance of age- and gender-based differences not tested).

The prevalence and volume of alcohol consumption, as measured in NHANES-III instruments, was generally comparable for FSP participants and income-eligible nonparticipants (tables D-166 to D-168). Roughly three-quarters of both FSP participants and income-eligible nonparticipants 12 years of age and older reported consuming at least 12 alcoholic beverages in their lifetime. More than 35 percent in each group reported consuming at least 12 alcoholic beverages within the past year and, on an average drinking day, FSP participants and income-eligible nonparticipants consumed 4 to 5 drinks.

In contrast, FSP participants were significantly less likely than higher-income nonparticipants to have consumed 12 or more alcoholic beverages—both over a lifetime (74% vs. 82%) and within the past year (37% vs. 52%) (tables D-166 and D-167). When drinking, however, FSP

participants consumed more alcoholic beverages, on average, than higher-income nonparticipants (5 drinks vs. 3 drinks) (figure 48 and table D-168). Differences between FSP participants and higher-income nonparticipants in both alcohol consumption over the past year and the mean number of drinks consumed when drinking were observed for both males and females (tables D-167 and D-168). However, the difference between the two groups in lifetime alcohol consumption was concentrated among females, particularly those in the older age groups (table D-166).

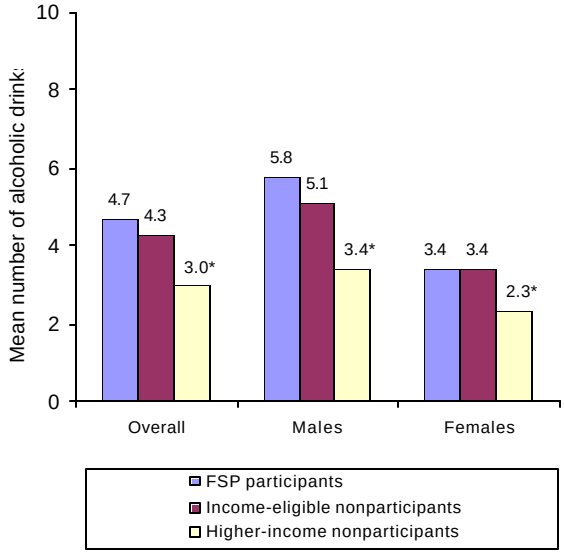
Tobacco Use

About half (49%) of all individuals 12 years and older reported having been a smoker at one time in their lives (defined as having smoked at least 100 cigarettes (5 packs)) (table D-169). The percentage of smokers increased dramatically between 12-19 years and 20-29 years (16% vs. 46%). Overall, the prevalence of tobacco use was greater for males than for females (58% vs. 41%) (statistical significance of age- and gender-based differences not tested).

FSP participants were significantly more likely than either income-eligible nonparticipants or higher-income nonparticipants to have ever smoked (figure 49). Fifty-seven percent of FSP participants 12 years of age and older smoked at least 100 cigarettes during their lifetime, compared with 51 percent of income-eligible nonparticipants and 48 percent of higher-income nonparticipants. These between-group differences were observed for both males and females.

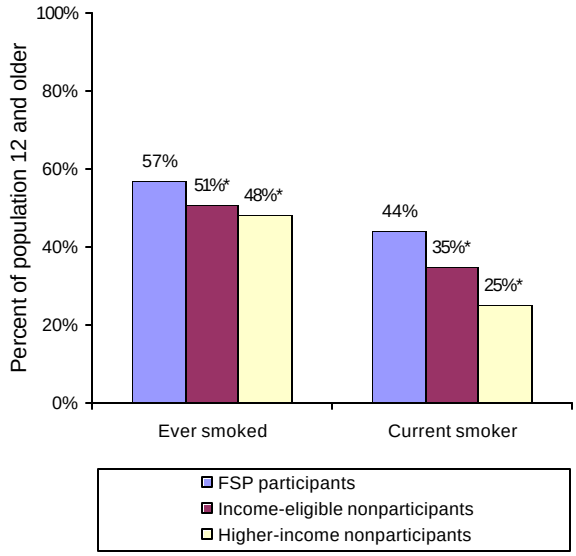
Current use of cigarettes (defined as having smoked cigarettes in the last 5 days, regardless of whether 100 or more cigarettes had been smoked over a lifetime) was also significantly more common among FSP participants than either income-eligible or higher-income nonparticipants (44% vs. 35% and 25%) (figure 49 and table D-170). There were no significant between-group differences in current use of pipes, cigars, and chewing tobacco (table D-171).

Figure 48—Mean number of alcoholic drinks consumed on average drinking day



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

Figure 49—Percent of persons 12 years and older who were or are smokers



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

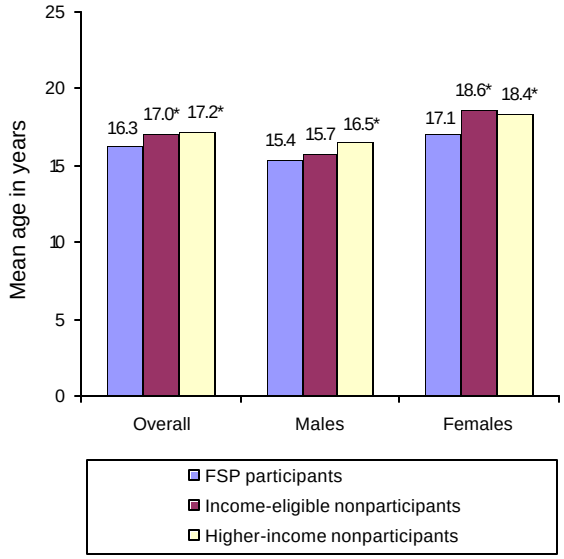
These general patterns were noted for both males and females; however, FSP females were significantly more likely than higher-income females to report current use of pipes, cigars, or chewing tobacco (3% vs. 0.5%).

FSP smokers and smokers in each of the nonparticipant groups smoked comparable numbers of cigarettes. Overall, smokers averaged 80 cigarettes (4 packs) over the past 5 days, or about three-quarters of a pack per day (table D-172). Male FSP smokers smoked *fewer* cigarettes than higher-income male smokers (79 cigarettes in the past 5 days vs. 90). There were no overall between-group differences for females.

Mean Age Began Smoking

On average, smokers began smoking at about 17 years of age (table D-173). FSP participants started smoking at a younger age than either group of nonparticipants (figure 50 and table D-173). The mean age at which FSP participants became regular smokers was 16.3 years, compared with 17.0 years and 17.2 years, respectively, for income-eligible nonparticipants and higher-income nonparticipants. The difference between FSP participants and income-eligible nonparticipants was attributable primarily to a difference among females. Differences between FSP participants and higher-income nonparticipants were noted for both males and females.

Figure 50—Mean age when became a regular smoker



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

Exposure to Second-Hand Smoke

NHANES-III gathered information on the number of smokers living in each household and the number of cigarettes smoked by those individuals. These data reveal that nonsmoking FSP participants were more likely than either group of nonsmoking nonparticipants to be exposed to second-hand smoke produced by other household members (table D-174). Thirty-four percent of nonsmoking FSP participants (including infants and children) lived in homes where there was at least one smoker. Comparable figures for nonsmoking nonparticipants were 26 percent for income-eligible nonparticipants and 18 percent for higher-income nonparticipants. This pattern was observed for both males and females, although the difference between FSP participants and income-eligible nonparticipants was not statistically significant for the gender-specific comparisons.

The exposure of infants and young children to second-hand smoke is of special concern. FSP infants under a year of age were more likely than infants in either of the nonparticipant groups to be exposed to second-hand smoke (table D-174). Moreover, FSP children between the ages of 1 and 5 were more likely to be exposed to second-hand smoke than comparably aged children in the higher-income nonparticipant group.

Based on the mean number of cigarettes smoked per day by smokers in their households, FSP nonsmokers were exposed to significantly greater amounts of second-hand smoke than

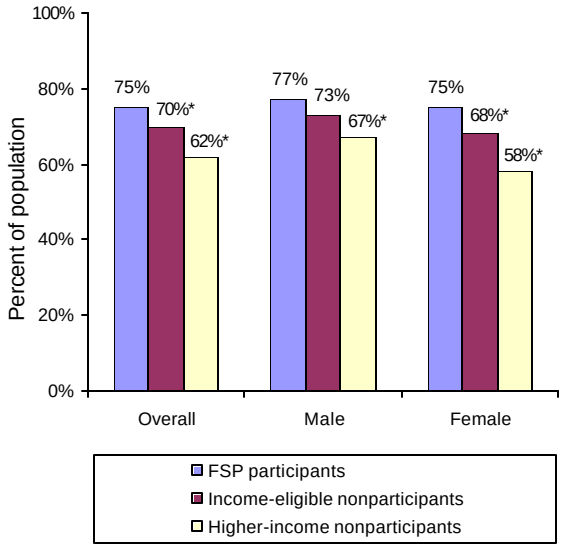
nonsmokers in either of the nonparticipant groups (table D-175). Smokers in households where FSP nonsmokers resided smoked 18 cigarettes per day, on average, compared with 14 cigarettes per day for both groups of nonparticipants. This pattern was noted for both males and females.

NHANES-III measured serum cotinine levels in all respondents 4 years and older. Cotinine is a breakdown product of nicotine that is used as a biological marker for tobacco use and exposure to environmental tobacco smoke. The results of the serum cotinine tests were consistent with the preceding findings about differences between groups in exposure to second-hand smoke. Overall, 75 percent of FSP nonsmokers had high serum cotinine levels, compared with 70 percent of nonsmokers in the income-eligible nonparticipant group and 62 percent of nonsmokers in the higher-income nonparticipant group (figure 51 and table D-176). This pattern was noted for both males and females; however, the difference between FSP participants and income-eligible nonparticipants was not statistically significant for males.

Statistically significant differences between FSP participants and income-eligible nonparticipants were concentrated among the youngest age groups (children and adolescents between 4 and 19). Differences between FSP participants and higher-income nonparticipants were observed in these age groups as well as among several gender-and-age specific groups of adults.

Perhaps most alarming is the high prevalence of abnormal serum cotinine levels in children, which was exceptionally high for FSP participants. Among 6-11-year-olds, for example, more than 85 percent of FSP participants had high serum cotinine levels, compared with 69 percent and 62 percent for the two groups of nonparticipants. The data suggest that between-group differences may be even more dramatic for 4-5-year-olds; however, the point estimate for FSP participants in this age group is statistically unreliable.

Figure 51—Percent of nonsmokers with high serum cotinine levels



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