Chapter 15

Who Knew? Perception and Reality of Cholesterol in Our Diets

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Determining how accurately consumers are able to assess their cholesterol consumption could offer insights into how well existing nutritional guidance is being understood. Analysis of the 1989-91 Continuing Survey of Food Intakes by Individuals and its accompanying Diet and Health Knowledge Survey shows that 26 percent of respondents had excessive cholesterol intakes. Twelve percent of the respondents were "realists" who recognized their cholesterol intakes were high, and 14 percent were "optimists", who incorrectly believed their high cholesterol intakes were "about right." This has implications for nutrition education. For example, there is no reason to expect the optimists to attempt to change their eating habits, since they are unaware of their high cholesterol intake. On the other hand, the realists, who are aware of their high cholesterol intakes, could prove more reluctant to change their eating habits.

Introduction

A healthy diet should be low in cholesterol—good advice, but perhaps not always easy to follow. Monitoring nutrient consumption requires that people know the nutritional content of a wide variety of foods served in myriad combinations. Keeping tabs on your cholesterol consumption can get complicated, even for meals prepared in

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your own kitchen. The task becomes more difficult still when it comes to that fast-food lunch, dinner at a fine restaurant, or the pizza delivered to your front door.

People who are genuinely concerned about maintaining a healthy diet might easily eat more than the recommended limit of cholesterol without realizing it. Such consumers present a special challenge for the development of nutritional education policy. While this group could benefit from additional nutritional education, they may not be receptive to it if they already believe their diets are healthy.

Determining how accurately consumers are able to assess their cholesterol consumption could offer insights into how successfully existing nutritional guidance is being understood. Further, determining whether the accuracy of self-assessed intakes follows noticeable trends with respect to respondents' nutritional awareness or sociodemographic characteristics could prove useful to the development of nutrition education programs.

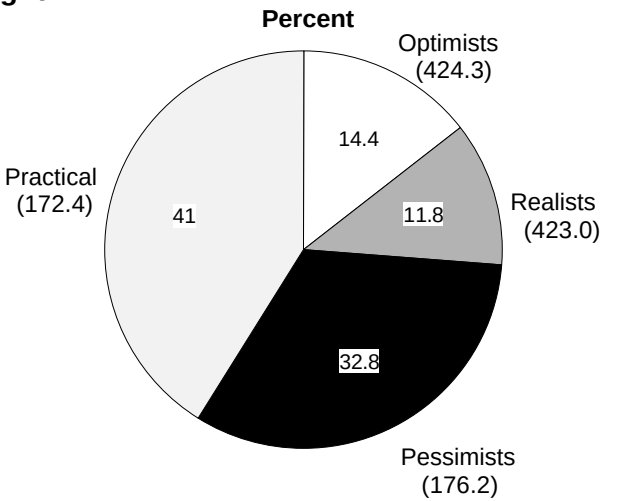
Realists, Optimists, Pessimists, and the Practical

The information used to compare respondents' actual and self-assessed intakes of cholesterol was obtained from the U.S. Department of Agriculture's 1989-91 Continuing Survey of Food Intakes of Individuals (CSFII) and the companion Diet and Health Knowledge Survey (DHKS). The CSFII gathered information about actual food consumption for members of a representative sample of U.S. households over a period of up to 3 consecutive days. The meal planners of CSFII households were asked to participate in the DHKS, which includes a series of questions about their dietary perceptions, knowledge, and attitudes. Only meal planners who supplied 3 days' worth of food intake information and completed the DHKS are included in this analysis. Additional restrictions regarding the completeness of responses resulted in a final sample size of 3,732. However, because all respondents were meal planners, the results may not be applicable to all adults.

Actual cholesterol intakes were measured by adding the cholesterol content of the foods reported consumed over 3 consecutive days and averaging over the 3 days. Respondents whose consumption of cho-

Figure 1

Over 14 percent of respondents are optimists who mistakenly assess their cholesterol intake to be "about right"



Note: Mean intake in milligrams in parentheses.
Source: USDA/ERS.

lesterol exceeded 300 milligrams (mg) per day—the amount recommended by several health authorities and listed as the Daily Value by the Nutrition Facts Label on processed foods—were rated as having high actual intakes, while those at or below the recommended level were rated as having low actual intakes.

About one-quarter of the meal planners averaged a daily intake of more than 300 mg of cholesterol. Because most meal planners are female, the sample considered here is predominantly female (79 percent). A sample more representative of the male population would probably show a greater prevalence of excessive intakes because men tend to eat more than women.

Self-assessed intakes were inferred from response to the following DHKS question:

> "Let's talk about *your own* diet. In your opinion, should your diet be lower or higher (in the amount of) cholesterol or is it just about right compared with what is most healthful?"

If a person responded "lower," we take his or her self-assessed intake level to be high—that is, above the healthful level. If "about right," we take his or her self-assessed intake level to be low—that is, at or below the healthful level. Respondents (3 percent) who answered "should be higher" were excluded from the analysis.

For comparing self-perceived intakes to actual intakes, we established four categories of accuracy for respondents' assessments. Those who correctly assessed high actual intakes as "should be lower" were the *realists*, while those who correctly assessed acceptable levels of actual intake as "about right" were the *practical*. Respondents who assessed high actual intakes as "about right" were the *optimists*, while those who assessed acceptable levels of actual intake as "should be lower" were classified as *pessimists*.

Twelve percent of the respondents were realists, and 14 percent were optimists, for 26 percent of respondents had excessive cholesterol intakes (fig. 1). The mean intake for individuals consuming too much cholesterol was about 424 mg per day. The mean intake for the remaining 74 percent of respondents—41 percent practical, 33 percent pessimists—was 172 and 176 mg/day respectively. (For variations in mean intakes of realists and optimists by sociodemographic characteristics, see table 1.)

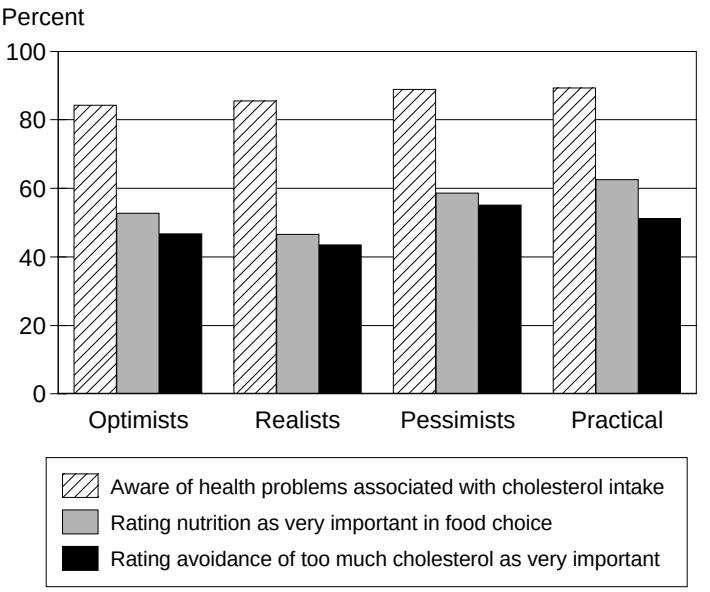
Assessment and Sociodemographic Characteristics[1]

In each of the accuracy categories, more than 80 percent of the respondents were aware of health problems associated with dietary cholesterol (fig. 2). The rating of nutrition as a "very important" consideration in food choice was most prevalent among respondents in the practical category. Conversely, the lowest prevalence of respondents rating nutrition as "very important" was among realists. Rating the avoidance of excessive cholesterol consumption as "very important" was most prevalent among pessimists and practical respondents.

[1] Differences in accuracy of assessment across sociodemographic characteristics are presented here for illustrative purposes, and have not been tested for statistical signficance.

Figure 2

Awareness of health problems associated with cholesterol intake was high in all self-assessment categories



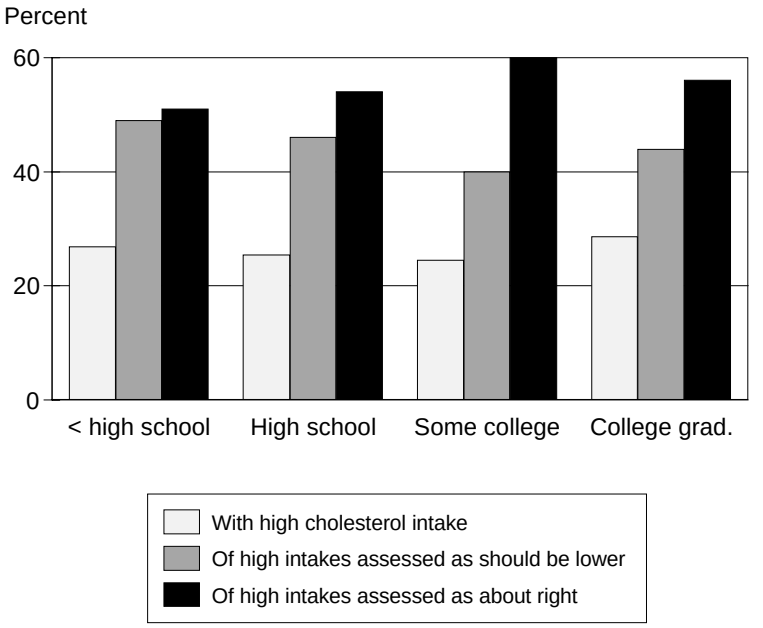
Source: USDA/ERS.

In general, we would expect people who are more educated to be more adept at maintaining a healthy diet, or at least more able to accurately assess their own nutrient intakes. However, there was no consistent trend with regard to high cholesterol intakes or the accuracy of assessment and years of education. Excessive cholesterol intakes were most prevalent among college graduates and those with less than a high school education (29 percent and 27 percent respectively) (fig. 3). In each education category, a slightly higher percentage of excessive intakes were assessed as "about right" than as "should be lower." The mistaken assessment of high intakes as "about right" was slightly more prevalent in the "some college" and "college graduate" categories than among respondents with a high school education or less.

Similarly, we might expect accuracy of assessment to improve with income, at least to the extent that wealthier people can better afford access to diet and health information. However, inaccurate assess-

Figure 3

Education did not affect self-assessment accuracy as expected



Source: USDA/ERS.

ments of high intakes were most prevalent among those in the two highest income categories (fig. 4).

The share of respondents consuming excessive amounts of cholesterol decreased consistently with age, from 33.2 percent for those under 30 to 15.3 percent for those over 70. However, older respondents with high intakes appeared more likely to mistakenly assess their intakes as "about right" (fig. 5).

Twenty percent of the women in the sample had cholesterol intakes that exceeded the recommended level. In contrast, almost half of the men consumed too much cholesterol—the highest percentage in any demographic category (fig. 6). Fifty-seven percent of men with high intakes mistakenly assessed their high intake as "about right," compared with 53 percent of women with high intakes. Men who mistakenly assessed their high cholesterol consumption as "about right" had a mean intake of 773.8 mg per day—the highest of any demographic group in any accuracy category (table 1).

Table 1—Share of *optimists* and *realists* by sociodemographic group

Group	Share of sample in the group[1]	Share of optimists	Mean intake	Share of realists	Mean intake
	Percent	*Percent*	*Mg*	*Percent*	*Mg*
Income:[2]					
Less than 130 percent	16.6	13.0	446.8	12.7	447.5
130-185 percent	11.2	7.8	395.7	12.9	471.7
186-350 percent	28.0	15.5	410.1	11.4	410.0
More than 350 percent	44.2	16.0	429.7	11.4	406.9
Education:					
Less than high school	29.2	13.7	423.6	13.2	448.4
High school graduate	36.2	13.6	426.3	11.8	428.0
Some college	19.3	14.7	422.9	9.8	408.8
College graduate	15.4	15.9	423.7	12.7	407.3
Gender:					
Male	20.8	28.4	773.8	21.2	464.8
Female	79.2	10.7	390.0	9.3	397.8
Race:					
White	85.6	14.2	418.9	10.9	409.6
Black	10.7	16.7	470.1	20.2	476.4
Other	3.7	12.3	390.6	8.2	450.7
Ethnicity:					
Hispanic	5.9	13.9	395.6	13.5	426.1
Non-Hispanic	94.1	14.5	426.0	11.7	420.1
Age:					
Under 30	16.0	18.0	434.4	15.2	418.3
30-49	45.0	16.3	425.0	14.1	427.0
50-69	26.0	11.6	409.7	8.5	405.7
70 and over	12.0	9.1	433.3	6.2	452.6
Smoking:					
Smoker	24.4	13.5	442.3	16.0	423.5
Nonsmoker	75.6	14.7	419.0	10.4	422.7

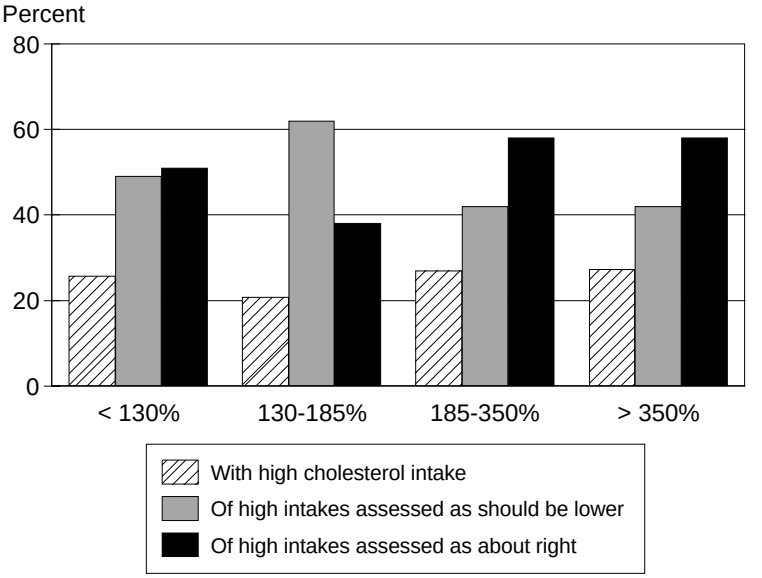
[1] Sample size is 3,732.

[2] Income expressed as a percentage of the poverty threshold.

Source: USDA/ERS.

Figure 4

The two highest income groups were more likely to inaccurately assess their cholesterol intake



Note: Income is expressed as a percent of the poverty line.

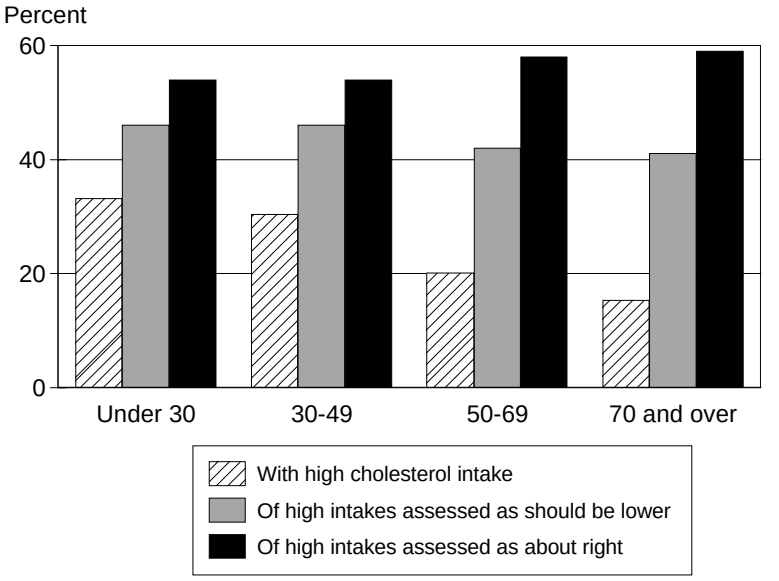
Source: USDA/ERS.

Excessive cholesterol consumption appears to be more prevalent among Blacks than Whites. Thirty-seven percent of Black respondents had high cholesterol intakes, compared with 25 percent of White respondents (fig. 6). Blacks appeared more likely than White respondents to correctly assess their intake as "should be lower."

Hispanics and non-Hispanics differed little in terms of high cholesterol intakes. However, Hispanics appear to be more accurate in their assessment of high intakes (fig. 6).

Excessive cholesterol consumption was more prevalent among smokers than nonsmokers. Interestingly, even given their higher intakes, smokers appeared to be more aware of their adverse nutritional status compared with nonsmokers (fig. 6). Fifty-four percent of the smokers with high intakes correctly assessed their cholesterol consumption as too high, compared with 41 percent of nonsmokers with high intakes.

Figure 5
Accuracy of cholesterol self-assessment is inversely related to age



Source: USDA/ERS.

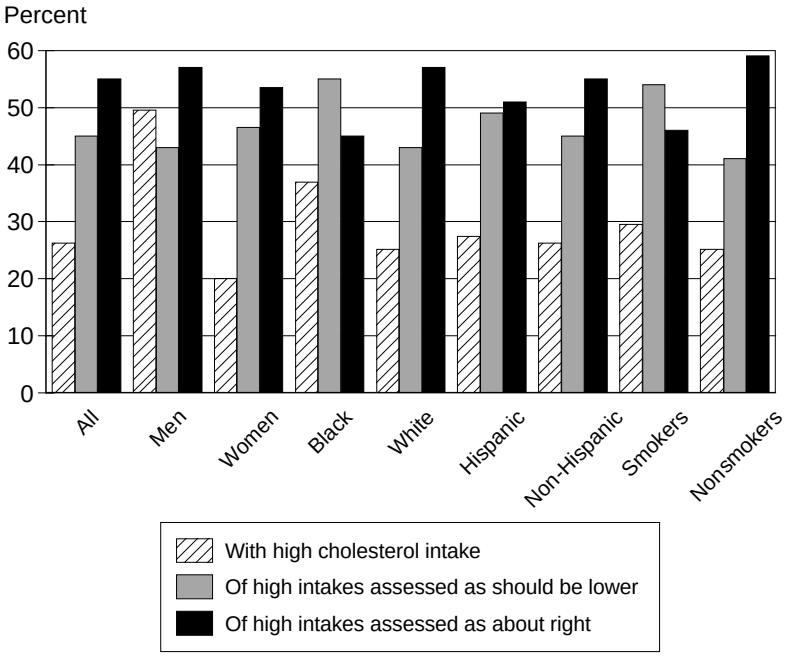
Conclusion

One-fifth of the women and men considered in this study were found to be consuming excessive amounts of cholesterol. For both men and women, more than 50 percent of respondents with high intakes do not realize they are consuming too much cholesterol. Furthermore, the highest mean intake of cholesterol was found among men who were unaware that their cholesterol consumption was high.

Most cigarette smokers—at least to some degree—know that quitting would improve their long-term health prospects. Whether they ever actually quit or not, this knowledge keeps the possibility active in their minds. Conversely, people who mistakenly assess their high intakes of cholesterol as low—our *optimists*—are unaware that their nutritional choices may be detrimental to their health, and there is no reason to expect them to attempt to change their eating habits. Additional health and diet information might help respondents in this

Figure 6

Excessive cholesterol intakes and inaccurate assessments are more prevalent among men than women



Source: USDA/ERS.

group better control the amount of cholesterol in their diets if made aware of their mistaken self-assessments.

People who are aware of their high cholesterol intakes—our realists—could prove more reluctant to change their eating habits. Many considerations—not just the nutritional value of food—affect dietary choices. Many of these respondents may have decided to accept the health risks associated with their diets because they enjoy the taste or convenience of foods that are high in cholesterol. Influencing the dietary behavior of this group might require a convincing demonstration that healthier eating can be as affordable, convenient, and satisfying as their present diets.

In the real world, where resources are limited, it seems likely that targeting efforts toward the *optimistic* respondents would offer the high-

est return per dollar devoted to nutrition education. The realists are already aware of their excessive cholesterol intakes, but are perhaps less than eager to do anything about it. Changing these respondents' perceptions of "healthy eating" could prove a costly proposition. In contrast, *optimists* may be very willing to eat more healthfully, and could perhaps readily do so if they are simply made aware of their dietary errors.

Confusion on the part of consumers in sorting out huge volumes of nutritional and health information has been well documented in both the popular press and in professional literature. A recent development that may enable consumers to more accurately judge the nutritional content of foods was the introduction of the "Nutrition Facts" label in 1994, listing the content of calories, fat, saturated fat, and cholesterol (in addition to other nutrients) in each serving of most packaged food items.

However, studies indicate that the effectiveness of the new label in promoting healthier diets varies greatly with the motivations of individual consumers. Hence, while the new label may help the *optimists* to monitor their cholesterol consumption more closely, it may be of less use in improving the dietary habits of *realists*, since these respondents already appear to have a reasonably accurate understanding of the cholesterol content of the foods they eat. Alternatively, increased availability of healthier versions of familiar foods could help reduce the cholesterol intakes of *optimists* and *realists* alike. The development of a wider variety of tasty low- cholesterol and cholesterol-free products may help to persuade a broader range of consumers to make healthy eating a part of their daily routine.

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