

Perceptions of a Healthy Diet

Insights From a 3-Country Survey

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Limited data exist on consumer beliefs and practices on the role of omega-3 fatty acid and vitamin D dietary supplements and health. For this reason, the Global Health and Nutrition Alliance conducted an online survey in 3 countries ($n = 3030$; United States = 1022, Germany = 1002, United Kingdom = 1006) of a convenience sample of adults (aged 18–66 years) who represented the age, gender, and geographic composition within each country. More than half of the sample (52%) believed they consume all the key nutrients needed for optimal nutrition through food sources alone; fewer women (48%) than men (57%), and fewer middle-aged adults (48%) than younger (18–34 years [56%]) and older (≥ 55 years [54%]) adults agreed an optimal diet could be achieved through diet alone. Overall, 32% reported using omega-3s (45% in United States, 29% in United Kingdom, and 24% in Germany), and 42% reported using vitamin D dietary supplements (62% in United States, 32% in United Kingdom, and 31% in Germany). Seventy eight percent of the sample agreed that omega-3 fatty acids are beneficial for heart health; however, only 40% thought that their diet was adequate in omega-3 fatty acids. Similarly, 84% agreed that vitamin D was beneficial to overall, and 55% of adults from all countries were unsure or did not think they consume enough vitamin D in their diet. For most findings in our study, US adults reported more dietary supplement use and had stronger perceptions about the health effects of omega-3s and vitamin D than their counterparts in the United Kingdom and Germany. Nevertheless, the consistent findings across all countries were that adults are aware of the importance of nutrition, and most adults believe their diet is optimal for health. Our data serve to alert dietitians and health professionals that consumers may have an elevated sense of the healthfulness of their own diets and may require guidance and education to achieve optimal diets. *Nutr Today*. 2015;50(6):282–287

Various dietary components are essential to sustain life and for optimal physiological function.¹ The beneficial role of vitamins and minerals in preventing deficiency disorders has been characterized for

centuries, but the role of micronutrients, bioactives, and dietary practices in the prevention of chronic disease is a much more recent area of investigation. In fact, the US National Institutes of Health recently convened a conference to understand how the Dietary Reference Intakes can be applied to chronic disease framework.² However, consumer beliefs about the role of diet on health are moving much more quickly than the science. We know that the primary reason that both adults and children use dietary supplements is to prevent disease or maintain overall health,^{3,4} despite a controversial scientific literature on the use of dietary supplements for prevention of chronic disease.⁵

One thing that scientists, dietitians, and the public can all agree upon is that an optimal diet should be a primary focus of a healthy lifestyle. Unfortunately, we know that many people are not consuming the recommended amounts of micronutrients naturally through their diet alone.⁶⁻⁹ Thus, although there is consensus among the nutrition and medical communities that diet can influence many chronic conditions (ie, diabetes, cardiovascular disease, and obesity), the average consumer's knowledge of how to consume nutrient-rich, high-quality diets has largely been inconsistent with the Dietary Reference Intakes¹⁰⁻¹⁵ and the *Dietary Guidelines for Americans*.¹⁶ For this reason, the newly formed Global Nutrition and Health Alliance (GNHA),¹⁷ a global, multidisciplinary group of physicians and nutrition experts working together to educate the public and professionals about optimal nutrition as part of a healthy lifestyle, conducted a survey to characterize the current beliefs and practices on the role of diet, nutrient composition of the diet, and health with a specific emphasis omega-3 fatty acids—primarily, eicosapentaenoic acid and docosahexaenoic

acid—(hereafter referred to omega-3s) and vitamin D. We chose vitamin D and omega-3 fatty acids because they are not ubiquitous in the food supply, and limited data exist on consumer beliefs and practices on their role in health.

METHODS

The GHNA Nutrition Survey was administered online and included 3030 participants from the United States (n = 1022), Germany (n = 1002), and the United Kingdom (United Kingdom; n = 1006) using a convenience-based sample with recruitment completed by Instantly (formerly uSamp), a marketing and research firm. The sample consisted of adults (aged 18-66 years) who represented the age, gender, and geographic composition within each country and were comparable across countries. Potential participants were sent an e-mail with a link to the survey. The survey consisted of 20 questions with dichotomous, ordinal, and Likert scale response options, all of which were close ended, and took approximately 10 minutes to complete (see Appendix, Supplemental Digital Content 1, <http://links.lww.com/NT/A4>). Descriptive statistics were used to summarize the data, and *t* tests were used to compare means between subgroups. Statistical significance was set a *P* < .05.

RESULTS

The gender and age composition of the sample is presented in Figure 1. When country-level data were pooled, 72% of respondents thought they had a “healthy” or “optimal” diet. More than half of the sample (52%) believed they consume all the key nutrients needed for optimal nutrition through food sources alone, as opposed to the

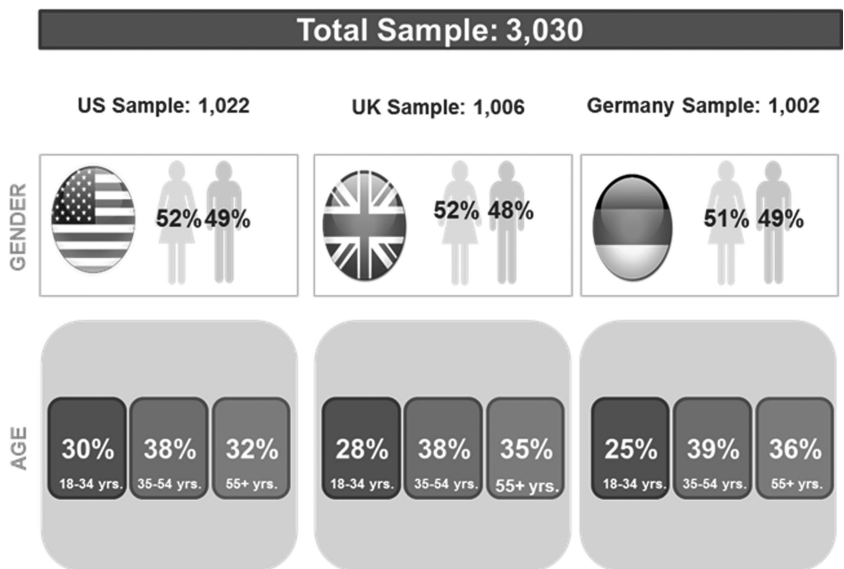


FIGURE 1. The gender and age composition of the Global Nutrition and Health Alliance Survey by country (n = 3030), 2014.

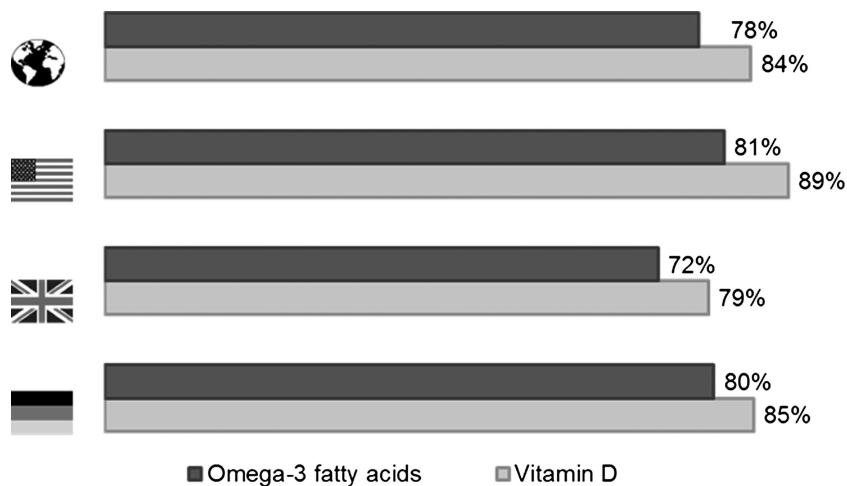


FIGURE 2. Percentage of adults who agree that omega-3 fatty acids and vitamin D play an important role in overall health. Results from the Global Nutrition and Health Alliance Survey, 2014. (The United Kingdom reports significantly lower percentage in agreement than the United States or Germany for both omega-3s and vitamin D).

35% who thought dietary supplements were needed to achieve the daily recommended intake of key nutrients and the 13% who were unsure. We found a significant difference by gender and age for the perception that an optimal diet could be achieved through diet alone: fewer women (48%) than men (57%) and fewer middle-aged adults (48%) than younger (18-34 years [56%]) and older (≥ 55 years [54%]) adults agreed an optimal diet could be achieved through diet alone.

More than half of adults (55%), regardless of country, recognized that optimal nutrition is important to health, whereas 32% believed there is a value to using dietary supplements. Most adults thought that both omega-3s and vitamin D play a significant role in overall health (Figure 2). A significantly higher proportion of adults in both the United States and Germany felt both nutrients were important for health when compared with adults in the United Kingdom,

but a much lower proportion of adults report using dietary supplements containing these nutrients across all countries (Figure 3). Overall, 32% reported using omega-3s (45% in United States, 29% in United Kingdom, and 24% in Germany), and 42% reported using vitamin D dietary supplements (62% in United States, 32% in United Kingdom, and 31% in Germany); significant differences by country and age are noted. Consumers cited many different health reasons for the use of omega-3 and vitamin D supplements. Most adults (92%) listed overall wellness, heart health (90%), and bone and joint health (84%) as important or very important; there was an overall trend for these factors to increase in importance as age increased (data not shown). More than half of adults (59%) associated omega-3s with heart health; this was higher in the United States than in the United Kingdom and Germany, higher in females when compared with males, and higher in adults older than

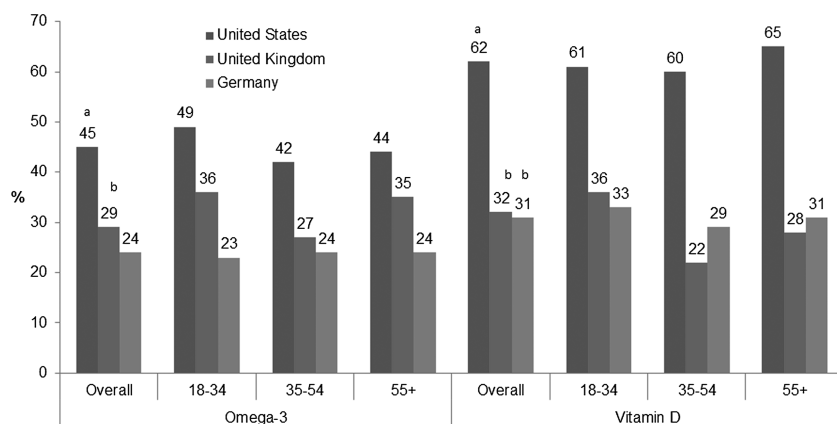


FIGURE 3. The prevalence (%) of use of omega-3 fatty acid and vitamin D dietary supplements by age and country: Results from the Global Nutrition and Health Alliance Survey, 2014. Countries with different letter denotations indicate significant differences in prevalence, $P < .05$. No significant age group prevalences were noted for the United States or Germany. In the United Kingdom, the 18- to 34-year-olds had a higher prevalence of use for both nutrients than the 35- to 54-year-olds and those 55 years or older.

35 years than in younger adults (Table). Vitamin D was most highly associated with overall wellness (49%); more adults in the United States felt vitamin D was important for wellness than in the United Kingdom or Germany, and more females than males overall (Table). Overall, 78% of the sample agreed that omega-3 fatty acids are beneficial for heart health: United States (81%), Germany (80%), and United Kingdom (72%). Given the high prevalence, it is interesting to note that only 40% thought that

their diet was adequate in omega-3 fatty acids, whereas another 32% were unsure, and there was a large discrepancy about perceived importance of omega-3s for heart health and use of omega-3 dietary supplements (Figure 4). Similar to omega-3s, a high percentage of respondents agreed that vitamin D was beneficial to overall health (84%). More than half of adults (55%) from all countries were unsure or did not think they consume enough vitamin D in their diet.

TABLE Percentage (%) of Adults Who Believe Omega-3 Fatty Acids and Vitamin D Can Improve Specific Components of Health: Results From the Global Nutrition and Health Alliance Survey, 2014

	Total Sample	Country			Gender		Age, y		
		United States	United Kingdom	Germany	Male	Female	18–34	35–54	≥55
n	3030	1022	1006	1002	1472	1558	835	1154	1041
Omega-3 fatty acids									
Overall wellness	43%	48%	41%	41%	40%	46%	36%	44%	48%
Heart	59%	60%	53%	63%	56%	61%	49%	61%	64%
Bones and joints	35%	31%	44%	28%	31%	38%	27%	37%	39%
Brain	45%	46%	46%	44%	41%	49%	43%	49%	43%
Mood	19%	24%	19%	16%	18%	20%	21%	23%	15%
Cancer	17%	20%	12%	19%	17%	17%	13%	18%	19%
Fetal development	19%	20%	16%	21%	16%	22%	23%	21%	14%
Digestion	26%	28%	21%	30%	27%	26%	26%	26%	26%
Alzheimer disease	23%	25%	25%	20%	21%	25%	18%	27%	24%
Vision	22%	25%	19%	21%	20%	23%	22%	22%	21%
Vitamin D									
Overall wellness	49%	57%	41%	48%	44%	53%	44%	49%	52%
Heart	30%	35%	22%	34%	32%	29%	28%	32%	31%
Bones and joints	40%	45%	37%	38%	37%	43%	34%	42%	43%
Brain	31%	32%	24%	37%	31%	31%	29%	32%	32%
Mood	29%	29%	25%	34%	26%	32%	31%	32%	26%
Cancer	13%	16%	8%	14%	11%	14%	11%	14%	13%
Fetal development	23%	26%	19%	26%	20%	27%	24%	24%	23%
Digestion	20%	25%	15%	19%	21%	19%	21%	20%	19%
Alzheimer disease	15%	16%	13%	16%	15%	15%	11%	15%	18%
Vision	29%	27%	23%	35%	29%	28%	29%	28%	29%

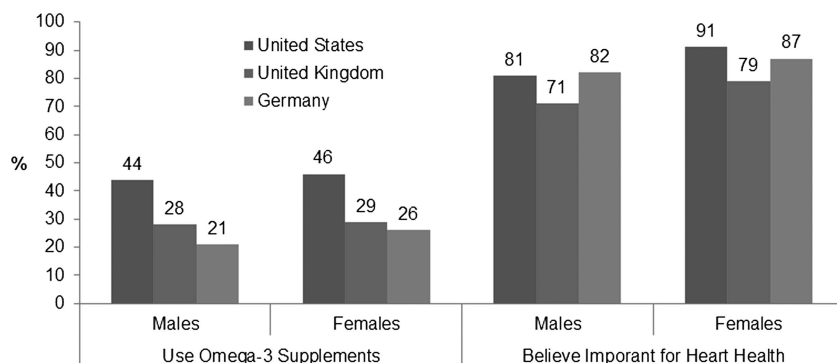


FIGURE 4. The prevalence (%) of use of omega-3 fatty acid dietary supplements and proportion (%) of adults who believe omega-3 fatty acids are important for heart health by gender and country: Results from the Global Nutrition and Health Alliance Survey, 2014.

Approximately one-third of adults (34%) perceived that there were deficiencies of omega-3s in their country, with the United States (42%) reporting significantly higher than the United Kingdom (28%) or Germany (32%). More adults overall thought vitamin D deficiency exists in the country (40%), again with the United States reporting significantly more (49%) than the United Kingdom (37%) and Germany (33%).

DISCUSSION

Most adults, regardless of country, felt they had an optimal diet and were adequate in both omega-3s and vitamin D. While we do not have an estimated average requirement level for omega-3s, we know that the dietary data indicate approximately 70% of US children and adults fail to meet the estimated average requirement for vitamin D, even with the use of dietary supplements.⁶ Very little is known about the omega-3 intakes of Americans, but on average, US adults consume 3.5 oz of fish per week, less than half the recommended amount (8 oz) from the *2010 Dietary Guidelines*.¹⁶ Fish and seafood consumption at recommended levels to obtain adequate omega-3s can be quite costly, and cost has been associated with achieving Healthy Eating Index recommendations for these foods.¹⁸ Furthermore, concerns about mercury may limit the intakes of fish for certain population groups such as children and pregnant and lactating females.

The results of the GNHA Nutrition Survey are consistent with nationally representative survey data in the United States (NHANES 2007–2010) that have indicated people choose supplements because they believe they will help promote overall health.³ Currently in the United States, omega-3 dietary supplements are the third most common product choice,³ whereas the *Nutrition Business Journal* lists “fish and animals oils” as the seventh highest in dietary supplement sales in 2013 (sales at \$1168 million annually).¹⁹ Cardiovascular disease remains the leading cause of mortality in all 3 of the countries sampled in this report.²⁰ The American Heart Association recommends that individuals

with signs of coronary heart disease consume 1000 mg of omega-3 fatty acids per day.

The risk of osteoporosis and bone fractures increases with advancing age. One in 3 women and 1 in 4 men older than 50 years will experience a bone fracture.²¹ Given the rapid global aging of our population, modifiable factors that contribute to maintaining bone health are of utmost public health importance.¹⁵ Vitamin D is critical to maintain bone health and has consistently been identified as a nutrient of public health concern. Our data indicate that most adults (84%) understand the importance of vitamin D for bones but that many are not actively using supplements to achieve recommended levels, particularly in the United Kingdom and Germany. It is quite difficult to meet the requirements for vitamin D from diet alone. Vitamin D can be synthesized from UV radiation (ie, sunlight); however, public health professionals caution against extended sun exposure because of the increased likelihood of cancer.

For most findings in our study, US adults reported more dietary supplement use and had stronger perceptions about the health effects of omega-3s and vitamin D than did their counterparts in the United Kingdom and Germany. Nevertheless, the consistent findings across all countries were that adults are aware of the importance of nutrition, and most adults believe their diet is optimal for health. The widespread burden of chronic diseases across all countries sampled, such as obesity, diabetes, and cardiovascular disease, does not suggest that adults are indeed consuming optimal diets as they may believe. Our data serve to alert dietitians and other health professionals that consumers may have an elevated sense of the healthfulness of their own diets and may require guidance and education to achieve optimal diets.

STRENGTHS AND LIMITATIONS

The GNHA Nutrition Survey had equal representation from 3 large, developed countries with documented extensive use of dietary supplements from previous reports. Our

prevalence findings are consistent with previous reports in the United States. Interpretation of our findings should be made with these caveats in mind. The GNHA Nutrition Survey used convenience sampling to obtain data. As such, we cannot be sure of the extent of bias associated with the reporting. The use of an electronic format automatically eliminates anyone from participating without an e-mail address and those who are illiterate.

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