RESEARCH
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Optimism and Diet Quality in the Women's Health Initiative

Melanie D. Hingle, PhD, MPH, RD; Betsy C. Wertheim, MS; Hilary A. Tindle, MD, MPH; Lesley Tinker, PhD, RD; Rebecca A. Seguin, PhD; Milagros C. Rosal, PhD; Cynthia A. Thomson, PhD, RD

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ABSTRACT

Diet quality has not been well studied in relation to positive psychological traits. Our purpose was to investigate the relationship between optimism and diet quality in postmenopausal women enrolled in the Women's Health Initiative observational study (OS) and clinical trials (CTs), and to determine whether optimism was associated with diet change after a 1-year dietary intervention. Diet quality was scored with the Alternate Healthy Eating Index (AHEI) and optimism assessed with the Life Orientation Test-Revised. Baseline characteristics were compared across AHEI quintiles or optimism tertiles using regression models with each variable of interest as a function of quintiles or tertiles (OS, n=87,630; CT, n=65,360). Association between optimism and baseline AHEI and change in AHEI over 1 year were tested using multivariate linear regression (CT, n=13,645). Potential interaction between optimism and trial arm and demographic/lifestyle factors on AHEI change was tested using likelihood ratio test (CT intervention, n=13,645; CT control, n=20,242). Women reporting high AHEI were non-Hispanic white, educated, physically active, past or never smokers, hormone therapy users, had lower body mass index and waist circumference, and were less likely to have chronic conditions. In the CT intervention, higher optimism was associated with higher AHEI at baseline and with greater change over 1 year (P=0.001). Effect modification by intervention status was observed (P=0.014), whereas control participants with highest optimism achieved threefold greater AHEI increase compared with those with the lowest optimism. These data support a relationship between optimism and dietary quality score in postmenopausal women at baseline and over 1 year.
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PSYCHOLOGICAL ATTITUDES ARE SIGNIFICANTLY related to health outcomes, and a growing body of evidence has demonstrated the salutary role of positive psychological factors on health.[1] These include factors such as subjective well-being,[2-4] positive affect,[5,6] emotional vitality,[7,8] and dispositional optimism,[9,10] all of which have been associated with favorable biological markers and lower incidence and severity of coronary heart disease[3,11,12] in diverse populations.

Among myriad psychological factors associated with good health, dispositional optimism (or positive expectancies for the future)[13] has emerged as a key trait for healthy behavior. Optimistic people have been shown to engage and persist in health behaviors such as regular physical activity, moderate alcohol consumption, and smoking avoidance,[12,14] and are more likely to adhere to medical advice.[15,16]

In the largest study to date on dispositional optimism and health, optimism prospectively and independently predicted lower incident coronary heart disease risk and all-cause mortality in 100,000 postmenopausal women participating in the Women's Health Initiative (WHI).[12] In this study, health behaviors such as not smoking and being physically active explained part of this observed relationship. Dietary information was not included in that study, but a more recent study of middle-aged US men and women found that optimists had higher serum concentrations of antioxidants and that this was explained in part by their healthier diet.[17] The findings raise intriguing questions about whether optimism can be used as a marker to predict which individuals may make healthy behavior changes, or if optimism can enhance the effects of behavior change programs designed to have an influence on chronic disease risk factors. In another WHI study, optimism was a novel predictor of adherence to a low-fat eating pattern following a 1-year dietary intervention.[16] This intervention focused primarily on decreasing fat intake, although participants were also advised to consider other changes in diet, including increasing intake of vegetables, fruits, and fiber.[18] It remains unclear how optimism relates to changes in dietary behavior over time.

Optimists exhibit adaptive coping styles and robust self-regulation, both of which are critical to achieving successful behavior change.[19] An improved understanding of the relationships between dispositional optimism, dietary intake, and changes in diet can help explain how this trait may be used to prospectively influence nutrition and health.

The purpose of our study was to investigate the potential role of optimism as a predictor of diet quality and changes in diet quality in postmenopausal women, aged 50 to 79 years, enrolled in the WHI observational study (OS) and the WHI clinical trials

Table 1. Baseline characteristics of Women's Health Initiative participants, by Alternate Healthy Eating Index (AHEI)-2010 quintile[a]

	Quintile					
Characteristic	1 12.7-36.1 (n=30,598)	2 36.1-41.7 (n=30,598)	3 41.7-46.9 (n=30,598)	4 46.9-53.4 (n=30,598)	5 53.4-92.0 (n=30,598)	*P* trend[b]
	←——— *median (interquartile range)* ———→					
AHEI	31.4 (29.2-34.3)	39.0 (37.6-40.4)	44.3 (43.0-45.6)	50.0 (48.3-51.5)	59.8 (55.6-62.6)	
	←——— *mean±SD*[c] ———→					
Age (y)	62.3±7.2	63.1±7.2	63.2±7.2	63.6±7.2	63.7±7.2	<0.001
Waist circumference (cm)	90.3±14.6	88.2±14.0	86.5±13.3	85.0±13.3	82.3±12.4	<0.001
Body mass index	29.6±6.4	28.7±6.1	28.0±5.8	27.4±5.6	26.2±5.2	<0.001
Energy intake (kcal)	1,764±654	1,646±647	1,631±658	1,607±640	1,571±595	<0.001
Physical activity (MET[d] h/wk)	8.4±11.3	10.4±12.2	11.9±12.7	14.0±14.0	17.7±15.9	<0.001
	←——— % ———→					
Race/ethnicity						<0.001
American Indian or Alaskan Native	0.57	0.47	0.45	0.33	0.26	
Asian or Pacific Islander	1.09	2.02	2.64	3.18	3.73	
Black or African American	12.5	9.28	7.61	6.53	5.71	
Hispanic/Latina	5.40	4.22	3.67	2.83	2.07	
Non-Hispanic white	79.4	83.0	84.5	86.0	87.0	
Other	0.98	1.05	1.15	1.13	1.22	
Education						<0.001
≤High school diploma	31.3	25.8	21.8	17.7	12.7	
Any postsecondary education	40.6	40.1	38.2	37.4	33.4	
≥College graduate	28.2	34.1	40.0	45.0	53.9	
Marital status						<0.001
Never married	4.20	4.09	4.43	4.42	4.96	
Divorced or separated	16.5	15.1	14.8	15.6	16.9	
Widowed	17.9	17.7	17.2	16.5	15.5	
Married	60.1	61.7	62.1	61.7	60.6	
Marriage-like relationship	1.38	1.48	1.50	1.75	2.11	
Family income (annual)						<0.001
<$20,000	21.9	18.7	15.5	13.4	10.9	
$20,000-<$35,000	27.8	26.0	24.9	22.8	20.0	
$35,000-<$50,000	21.0	21.0	20.9	20.9	19.5	
$50,000-<$75,000	17.4	19.4	20.0	21.3	22.5	
≥$75,000	11.9	15.1	18.7	21.6	27.1	
Smoking						<0.001
Never	54.0	53.3	51.5	49.0	46.3	
Past	35.8	38.8	41.8	45.4	49.7	
Current	10.2	7.95	6.72	5.63	4.03	

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