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# Psychological and cognitive characteristics of vegetarians

**ABSTRACT:** The health beliefs and psychological status of 20 vegetarians were assessed with eight different psychometric tests. Although the group demonstrated elevated somatic concerns on the Hopkins Symptom Checklist (HSCL-90) and the Illness Behavior Questionnaire (IBQ), it did not differ from control populations on other dimensions of psychopathology. The subjects cited health concerns as the primary reason for avoiding meat products. They displayed a generally positive attitude toward modern medicine. The implications of these findings as compared with those of previous surveys of vegetarians are discussed.

During the past decade, increasing numbers of individuals have adopted vegetarian dietary patterns. Religious prohibitions, cultural beliefs, health benefits, and counterculture attitudes have been cited as primary reasons for such a diet, which departs from the Western tradition of meat intake. Although previous reports have studied factors leading to the adoption of vegetarianism, little objective data are available to describe the psychological or cognitive characteristics of such persons.<sup>1</sup> To our knowledge, this

study is the first to describe the objective psychological characteristics of a group of vegetarians.

## **Investigational procedure**

Twenty subjects were recruited to participate in this study by means of advertisements placed in local health food stores and community newspapers. All of them filled out a questionnaire pertaining to demographic characteristics, the rationale for dietary habits, attitudes about health beliefs, and the utilization of various

nontraditional health providers.

They then completed a battery of psychometric inventories for the following purposes. The HSCL-90<sup>2</sup> assesses psychological distress along nine primary dimensions. The IBQ<sup>3</sup> measures attitudes that suggest inappropriate or maladaptive modes of responding to one's state of health. The specific dimensions include general hypochondriasis, disease conviction, psychological vs somatic concerns, affective inhibition, dysphoria, denial, and irritability. The Eysenck Personality Inventory (EPI)<sup>4</sup> measures personality in terms of two independent dimensions: extroversion-introversion and neuroticism-stability. The Buss-Durkee Inventory<sup>5</sup> evaluates hostility.

Two measures of cognitive style were utilized. The Rotter Locus of Control (LOC) scale<sup>6</sup> quantifies the person's concept of control over his or her fate. It identifies an individual either as externally located, denoting belief in little control over one's future and dependence on surrounding forces, or as internally controlled, with a sense of self-reliance and being able to influence one's future. The

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## Vegetarians

Portable Rod and Frame Test<sup>7</sup> assesses cognitive style in the form of psychological differential, ie, field dependency or independency. Specifically, more structured analytic defenses such as isolation and intellectualization correlate with the field-independent person, whereas denial and repression correlate with the undifferentiated field-dependent style. These latter two variables, locus of control and field dependency or independency, are not measures of psychopathology but are indicators of cognitive styles.<sup>4</sup>

Eating Attitudes Test (EAT)<sup>8</sup> measures the kind of eating behaviors and related cognitions that are often seen in anorexic women. The Hysteroid-Obsessoid Questionnaire (HOQ)<sup>9</sup> measures personality traits, based on the assumption that hysterical and obsessional features represent a continuum, which can be scored. Specific traits for the hysterical pole of the continuum include attention-seeking and frequency of mood change, while the obsessoid pole is characterized by conscientiousness and minimal fantasy production.

The data were organized and analyzed using summary statistics, two-tailed *t* tests for group mean comparisons, and Pearson correlation coefficients.<sup>10</sup> The control groups consisted of samples studied with each instrument and whose scores were reported in the manual for that particular test.

### Results

**Beliefs and behaviors.** The study group consisted of well-educated young adults of normal weight<sup>11</sup> who had been vegetarians for an average of 9.0 years (SD, 6.0); see Table 1. They cited multiple reasons for having adopted a vegetarian diet. Thirteen (65%) mentioned health concerns as a reason for their dietary preferences. Twelve (60%) noted the desire to

	Male (N = 8)	Female (N = 12)
Mean age, yr	28 (SD, 3.8)	27.2 (SD, 4.2)
Marital status		
Single	2	8
Married	6	4
Education		
Through high school	2	7
College graduate	6	5
Body Mass Index (wt/ht <sup>2</sup> )*	23.2 (SD, 1.73)	20.3 (SD, 2.18)

\*The normal values for men are 20 to 25; for women, 19 to 24.<sup>11</sup>

avoid cruelty to animals as a reason and ten (50%) disliked the eating of animal flesh. Eight (40%) spoke of fear of a world food shortage as a reason for their vegetarianism, while only three (15%) said that meat tasted bad to them. Two had adopted a vegetarian diet owing to the influence of their spouses. All members of the group were native-born Americans and none had adopted vegetarianism for religious reasons.

They had learned about vegetarianism from a variety of sources: friends (40%), family (30%), health food stores (10%), and from their own inquiries (50%). Seventeen (85%) of the group never ate poultry, 13 (65%) abstained from fish, four (20%) did not eat eggs, and only two (10%) did not eat cheese or milk. All of them wore clothes containing wool and could not be classified as strict vegetarians, who do not use clothing, footwear, or household furnishings derived from animals. All subjects used products containing caffeine. All said that they would eat only in specific restaurants and were very vigilant about any meals or packaged foods that might have meat by-products in them.

Seventeen of the group reported that friends and family either agreed with their dietary approach or did not care. Only two thought that their parents disagreed with vegetarianism, and one noted that a friend had commented negatively on his choice of diet. Use of a visual analogue scale, with 0 denoting "total agreement" that modern medicine is useful and 100 meaning "total disagreement," produced an average for the group of 29.6 mm (SD, 33.2). Only two respondents had seen a nutritionist and one had sought advice from a herbal doctor. However, eight had tried yoga and six had practiced transcendental meditation. Four had utilized acupuncture, and five had tried a macrobiotic diet in the past. Seventeen were presently taking vitamins.

Recreational drugs were infrequently used. Eleven subjects had tried marijuana, yet only two used it more than once a week. Seven had taken LSD and four phencyclidine, but none had ever used those drugs regularly. Seventeen had used alcohol, but only seven took more than one drink per week.

Eight (40%) of the group had

sought psychiatric care in the past. For seven of them, depression and interpersonal difficulties had prompted recourse to treatment; one person had taken a drug overdose. Fifteen subjects (75%) believed that they were in the proper weight range; four thought themselves overweight; and one felt too thin. Those thinking that they were overweight were in fact found to be within normal limits.<sup>11</sup>

**Psychometric testing.** The scores on the HSCL-90 reflected the fact that the vegetarians reported more symptomatology than did a normal control group but less than a group of psychiatric outpatients<sup>12</sup> (Table 2). These scores for the vegetarians document some emotional distress but not in a range comparable to that of a psychiatric population. The IBQ scores showed that general hypochondriacal concerns were significantly ( $P < .02$ ) more marked than for a control group of family practice patients, but the remaining dimensions of disease conviction, psychological vs somatic concern, affective inhibition, dysphoria, denial, and irritability were not significantly different. Mean scores for the vegetarians for general hypochondriasis on the IBQ and on the remaining six inventories are shown in Table 3. The EPI results showed the study group to be more introverted on the Extroversion Scale but not to differ from a control population in regard to neuroticism. The Hostility Inventory revealed the vegetarians to have no more hostility than a normal control group. On the HOQ the group mean was approximately midway between the hysteroid and obsessoid poles. Their locus of control did not differ significantly from that of a normative adult population, while they were significantly ( $P < .01$ ) more field-independent and analytic in style on the rod and frame test than controls.<sup>13,14</sup> Eating behavior patterns of the female

**Table 2—Scores on the Hopkins Symptom Checklist for the Vegetarians, and the Significance of Differences from Scores Reported\* for Two Control Groups**

	Vegetarians (N = 20)		Normal controls (N = 947)	Psychiatric outpatients (N = 1002)
	Mean	SD	Significance of difference	
Somatization	.56	.50	$P < .05$	NS
Obsessive- compulsive	.86	.61	$P < .001$	$P < .01$
Interpersonal sensitivity	1.01	.85	$P < .001$	NS
Depression	.96	.78	$P < .001$	$P < .001$
Anxiety	.65	.53	$P < .001$	$P < .001$
Hostility	.62	.71	$P < .001$	$P < .05$
Phobic anxiety	.28	.43	NS	$P < .02$
Paranoid ideation	.78	.69	$P < .001$	NS
Psychoticism	.55	.56	$P < .001$	$P < .05$

\*Scores for the control groups as reported by Derogatis et al.<sup>12</sup>

**Table 3—Scores for the Vegetarian Group (N = 20) on Seven Psychometric Inventories**

	Mean	SD
Illness Behavior Questionnaire	1.90* (general hypochondriasis)	1.76
Eysenck Personality Inventory	12.95 (extroversion)*	3.12
	11.85 (neuroticism)	5.09
	1.50 (lie scale)	1.19
Hostility Inventory	27.00	11.20
Hysteroid-Obsessoid Questionnaire	25.85	5.76
Locus of Control Scale	10.80	4.47
Rod and Frame Test	♂ 1.71 (field)	1.50
	♀ 3.17 (dependency)	2.46
Eating Attitudes Test	18.36*	6.65

\*Scores significantly ( $P < .02$  for general hypochondriasis,  $P < .01$  for the remaining items with an asterisk) different from those of control populations, as reported in the manuals for the particular test.

(continued)

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## Vegetarians

vegetarians differed significantly ( $P < .01$ ) from those of an anorexic population.

Analyses of variance were performed for subsets of the vegetarian study group to ascertain whether there were significant test differences between persons who completely avoided fish and poultry and those who occasionally ate such food. No such differences were revealed by any dimensions of the HSCL-90, IBQ, EPI, HOQ, or the LOC.

Examination for correlation between specific variables showed that a tendency toward a hysteroid style related significantly ( $r = .53$ ;  $P < .03$ ), and that the somatization subscale of the HSCL-90 correlated significantly ( $r = .46$ ;  $P < .03$ ) with the general hypochondriasis dimension of the IBQ. An increasing feeling of hostility on the Hostility Inventory correlated significantly ( $r = .49$ ;  $P < .03$ ) with an increasing external locus of control. No significant correlation was found between increasing field dependency and a hysteroid style, between field dependency and locus of control, or between a hysteroid style and increasing hostility.

## Discussion

The study group in this report is similar to those in other surveys<sup>15</sup> of vegetarianism in the United States, in that the subjects were young and well-educated adults. The present group's citing of health concerns as the major factor in the choice of vegetarianism accords with previous surveys in this country. However, in the United Kingdom respondents have mentioned<sup>16</sup> avoidance of cruelty to animals as the primary reason for not using animal products. Surveys<sup>17</sup> in both countries reveal emphasis on metaphysical health beliefs as one element of various counterculture philosophies that vegetarians endorse. Al-

though our subjects frequently utilized meditation practices, they generally manifested a positive attitude toward modern medicine and rarely resorted to nontraditional healers. The minimal use of drugs and alcohol did not support a finding<sup>18</sup> that vegetarians have been actively involved with the drug culture and have adopted their diet as a reaction to such behavior.

The psychometric findings pointed to the group's concern with physical status and bodily symptoms. The confirmation that the group as a whole was markedly field-independent in cognitive style is noteworthy. An analytic style is needed if one is to maintain a vegetarian diet. Subjects frequently mentioned the need for vigilance, so as to avoid meat products. They did not display a specific characterologic style such as hysterical or obsessional. Although as a group they were found on the EPI to be more introverted, their basic similarity to a normal population supports Lester's conclusion<sup>19</sup> that persons associated with food fads or food cults did not display differences on the EPI.

On the whole, the group was more symptomatic than a normal population, as reflected by higher scores on HSCL-90, but they were less symptomatic than a psychiatric population. The 12 women did not have anorexic eating patterns. Isolated case reports<sup>20</sup> in the psychoanalytic literature have noted vegetarians to display increased oral aggression. This study does not confirm that. The correlations between hostility and external locus of control may reflect the rigors of avoiding meat among a primarily carnivorous population.

One explanation for the above findings is that vegetarians are acutely aware of physical health and bodily messages. They actively cope with these concerns by adopting what they perceive to be the most healthy diet. A

vegetarian diet appropriately supplemented with vitamins has been shown<sup>21</sup> to be advantageous in reducing coronary artery disease and lowering serum cholesterol. Our study did not apply depth psychology to ascer-

tain why vegetarian beliefs and practices had been adopted. However, it does suggest that vegetarians as a group show minimal deviations from normal controls on psychometric testing. Previous reports indicating such

persons to be impaired psychologically, or deviant, must be reconsidered. Although small, this study presents evidence that this alternative dietary style does not necessarily coexist with psychopathology. □

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## New books received

**Saunders Dictionary & Encyclopedia of Laboratory Medicine and Technology**  
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**Rehabilitation Psychology: A Comprehensive Textbook**  
by David W. Krueger, Rockville, Md., Aspen Systems Corp., 1984, 406 pp, \$31.

**Pathological Play in Borderline and Narcissistic Personalities**  
by Irving Steingart, Jamaica, N.Y., SP Medical & Scientific Books, 1983, 139 pp, \$24.95.

**The Denial of Stress**  
edited by Shlomo Breznitz, New York, International Universities Press, 1983, 316 pp, \$25.

**Psychiatry: Specialty Board Review, ed 3**  
by Namir F. Damlouji, John P. Feighner, and Marc A. Schuckit, New Hyde Park, NY, Medical Examination Publishing, 1983, 246 pp, \$26.50 (paperback).

**Visualization: The Uses of Imagery in the Health Professions**  
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**1983 Year Book of Psychiatry and Applied Mental Health**  
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