SELF-PERCEPTION OF ECONOMIC MEANS IS ASSOCIATED WITH DIETARY CHOICES, DIET QUALITY AND PHYSICAL HEALTH IN THE OLDEST OLD MEN FROM THE HIGHEST SOCIOECONOMIC GROUP

S.K. JYVÄKORPI[1], A. URTAMO[1], T.E. STRANDBERG[2]

1. University of Helsinki, Department of General Practice and Primary Health Care, Helsinki, Finland, and Helsinki University Central Hospital, Unit of Primary Health Care, Finland; 2. University of Helsinki, Clinicum, and Helsinki University Hospital, Helsinki, Finland; University of Oulu, Center for Life Course Health Research, Oulu, Finland. Corresponding author: Satu Jyväkorpi, Tukholmankatu 8 B, 00014 University of Helsinki, Tel: +358 50 4920970, satu.jyvakorpi@gery.fi

Abstract: *Introduction:* Self-perception of economic means may affect dietary choices, diet quality, and health behavior. We examined these associations in the oldest-old men from the highest socioeconomic class. *Methods:* The participants in this cross-sectional analysis were the oldest- old home-dwelling men (n = 314, mean age 87 years, range 82-97 years) from the longitudinal Helsinki Businessmen Study cohort. They responded to a postal health and nutrition questionnaire, whereupon dietary intakes were assessed using 3-day food diaries and two diet quality indices. The questionnaire also included items about health, exercise, falls, and economic means. *Results:* Higher self-perception of economic means was linearly associated with higher fish intake (p = 0.021), fruit and vegetable intakes (p = 0.027), use of alcohol (p = 0.003), overall diet quality according to IDQ (p = 0.008), self-perceived physical condition (p = 0.002) and inversely associated with body weight (p = 0.011), weight loss (p = 0.008), blood glucose levels (p = 0.020), and falls (p = 0.029). *Conclusion:* Self-perception of economic means was associated with dietary choices and physical health even among affluent older men. This information is important, because self-perception of economic means, however real, may affect health and nutrition behavior of older people.

Key words: Self-perception of economic mean, fruits and vegetables intake, diet quality, body weight, oldest old men, nutrition.

Introduction

Self-perception of economic means may affect dietary choices and health behavior. Foods considered too expensive may be consumed less due to lack of funds to purchase them (1). However, self-perception of economic means is subjective, and regardless of whether it is real or not it could influence dietary choices and ultimately health over the course of decades. Our study population differs in many ways from general population by being from the highest socioeconomic class and the oldest-old survivors of a longitudinal cohort. Consequently, they are financially better off than general population of older people (2). The objective of this study was to explore whether self-perception of economic means is associated with dietary choices, diet quality and health even in this special population of older men without economic constraints.

Methods

The participants in this cross-sectional analysis were the oldest-old home-dwelling men from the longitudinal Helsinki Businessmen Study cohort (2). In 2016, a postal health and nutrition questionnaire was sent to them, and economic situation was assessed by asking: "How well do you get along financially?" (Very well, Moderately, Badly). The nutrition survey included a 3-day food diary, Mediterranean Diet Adherence score (3) and Index of Diet Quality (IDQ) designed to measure adherence to Finnish dietary recommendations (4). Food intakes were retrieved using the diet quality indices indicated as portions, deciliters, tablespoons, glasses, or frequencies per week. The portion sizes were calculated to grams and validated with 3-day food diaries obtained from a subgroup of participants; the validation procedure is explained in more detail elsewhere (5). The participants were divided into groups corresponding to their self-perceived economic situation. Diet quality scores, food intakes, and other health indicators were classified according to the groups. The statistical significance for the hypotheses of linearity was evaluated for a trend using ANOVA for continuous variables, and with the Mantel-Haenszel test for categorical variables. The statistical analysis was performed, using the SPSS statistical program, version 24 (SPSS IBM, Armonk, NY, USA).

All participants signed an informed consent and the study protocol was approved by the Ethics Committee of the Helsinki University Hospital, Department of Medicine.

Results

Of the participants 476 men (response rate 67%) returned the survey, and 314 filled in both the economic means question and the diet quality indices. A subgroup of the participants (n= 142)

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Table 1

Food intakes, nutrition and health indicators according to self-perceived economic situation in the oldest old men from the HBS cohort

Self-perceived economic situation **Characteristics**	Very good n = 227	Moderate n = 87	p- value[1,2]
Self-perceived economic situation, %	73	27	< 0.001
Age, mean years (SD)	87.5 (3.1)	87.3 (3.8)	0.685
Food intakes			
Total fruit and vegetable, g/d (SD)	294 (262)	226 (160)	0.027
Vegetables, g/d (SD)	142 (136)	108 (79)	0.033
Fruits, g/d (SD)	154 (184)	119 (109)	0.100
100% fruit juice, g/d (SD)	113 (177)	98 (130)	0.483
Peas and beans, g/d (SD)	8 (14)	9 (19)	0.769
Fish, g per week (SD)	299 (180)	248 (157)	0.021
Milk products g per day (SD)	372 (445)	395 (324)	0.398
Red meat, g per week (SD)	129 (148)	144 (259)	0.520
Poultry, g per week (SD)	168 (63)	169 (59)	0.862
Chocolate, g per week (SD)	25 (75)	10 (26)	0.089
Use of alcohol			
No, never	20.4	31.8	0.003
have used, but stopped	16.6	22.4	
yes	63.0	45.8	
Diet quality			
MeDi (SD)	4.4 (1.7)	4.2 (1.3)	0.408
IDQ (SD)	10.0 (1.8)	9.4 (1.7)	0.008
Physical health			
Blood glucose, mmol/l	5.9 (0.9)	6.3 (1.3)	0.020
Cholesterol, mmol/l	4.4 (1.0)	4.2 (0.8)	0.212
Weight, kg	76.3 (10.7)	79.6 (13.0)	0.011
Weight loss, %			
> 3 kg or don't know	9.0	14.9	0.008
1-3 kg	13.8	20.6	
no weight loss	77.2	64.5	
Self-rated physical condition, %			
excellent or quite good	25.4	8.3	0.002
good	27.5	30.6	
average	37.3	52.8	
bad	9.8	8.3	
Falls, how many times during past year			
various times	4.0	6.8	0.029
1-2 times	26.8	35.9	
no falls	69.1	57.3	

1. Statistical significance of linearity was tested by ANOVA; 2. statistical significance linearity was tested by Mantel-Haenszel test; IDQ = Index of Diet Quality, MeDi = Mediterranean diet adherence score. The column "badly" was left out because none of the participants were in that group.

also returned 3-day food records. Mean age of the participants was 87 years (range 82-97 years). Of the participants, 73% and 27% classified themselves as having very good and moderate economic situation, respectively; no one indicated as having bad economic situation. As compared to moderate, very good economic situation was associated with higher fish ($p = 0.021$), total fruit and vegetable ($p = 0.027$), and total vegetable ($p = 0.033$) intakes, as well as more of them reported using alcohol ($p = 0.003$). Overall better diet quality according to IDQ ($p = 0.008$), and better self-perceived physical condition ($p = 0.002$). The reverse situation was observed with body weight (BW) ($p = 0.011$), weight loss ($p = 0.008$), blood glucose levels ($p = 0.020$), and falls ($p = 0.029$) (Table 1).

Age, MeDi, other food intakes, or plasma cholesterol levels were not associated with self-perceived economic situation.

Discussion

Even in this overall affluent cohort of older men, the best economic situation was associated with healthier dietary choices, higher diet quality, and better physical health, and less signs of unsuccessful aging.

Although lower economic status has been associated with poor diet quality and health outcomes in previous studies (6), our results are surprising considering that no one in this socioeconomically homogenous group reported having less than moderate economic situation (2). Furthermore, those reporting moderate economic means, also had higher body weight and blood glucose levels than those reporting very good economic situation. This is in line with studies indicating that subjects with lower income often eat more energy-dense foods and have higher BMI and risk of metabolic syndrome (7). The moderate income group also reported having lower self-rated physical condition and they had had more falls than the higher income group, again in line with previous studies (8). So far it is unclear, whether feeling economically secure is associated with physical, mental and psychological well-being (9). The associations between perceived economic situation, food choices, and health in our study indirectly suggest that even affluent people may be affected by feeling economically insecure.

The strength of this study was a reasonably high participation of the oldest old men. The nutrition data was gathered using various instruments which allowed us to validate the reports of consumed amounts. Economic situation of the participants was assessed using only one question, and more accurate income data was not collected. However, this cohort of businessmen and executives could be considered affluent in the first place, and although this was a retired cohort, pension system in efficient in Finland. The cross-sectional design of the study is a major limitation and it prevents drawing any conclusions about causal relationships.

In conclusion, self-perception of economic means was associated with diet quality, dietary choices, and health behavior. Feeling insecure about one's economic situation may thus influence healthy aging even in those from the highest socioeconomic class.

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