



Brief Communication

Is Loneliness Associated with Malnutrition in Older People? ☆

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SUMMARY

The aim of this study was to assess the possible relationship between loneliness and malnutrition among older people. The data were collected as part of the Geriatric Multidisciplinary Strategy for the Good Care of the Elderly (GeMS) study. A randomly selected sample ($n = 573$) of persons 75 years and older was included in the study. Nutritional status was screened with the Mini Nutritional Assessment (MNA). The individuals were classified into two groups, based on their MNA score: (1) well-nourished (i.e., MNA score ≥ 24) or (2) risk of malnutrition/malnutrition (i.e., MNA score < 24). Frequent feelings of loneliness (odds ratio = 1.63; 95% confidence interval, 1.09–2.45] and low Mini-Mental State Examination scores (odds ratio, 1.18; 95% confidence interval, 1.14–1.23) were associated with the risk of malnutrition/malnutrition. We concluded that subjective feelings of loneliness and cognitive impairment were associated with the risk of malnutrition/malnutrition.

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A subgroup analysis of a population-based comparative study—the Geriatric Multidisciplinary Strategy for the Good Care of the Elderly (GeMS)—was conducted in the City of Kuopio, Finland from 2005 to 2007¹. The participants ($n = 573$) were interviewed by a trained nurse. The Mini Nutritional Assessment (MNA) was used to screen the participants' nutritional status². Cognitive impairment was assessed by the Mini-Mental State Examination (MMSE) and comorbidity was analyzed using a modified version of the Functional Comorbidity Index (FCI)³. Self-rated health was assessed on a 5-point scale (ranging from “very good” to “very poor”) and the self-rated health categories “good,” “moderate,” and “poor” were combined for the analyses. Subjective loneliness was assessed by questions such as “How often do you feel lonely?” (3-step scale: 1 = “often,” 2 = “sometimes,” 3 = “never”). Poor social network was objectively assessed by the question “How often do you see and talk on the phone with your close friends?” (the 8-step scale ranges from “never” to “every day”). Social network was merged into three steps: “once a month or less,” “several times a month,” and “several times a week.” The participants were categorized into two groups, based on their MNA sum scores, using 23.5 points as the cut-off point.

Statistical comparisons between the groups were performed using the Chi-square test, Mann–Whitney U test or Independent sample T test. A value of $p \leq 0.05$ was considered significant. Univariate and multivariate (stepwise, forward selection) regression analyses were performed to identify demographic, clinical, and functional factors associated with possible malnutrition (i.e., MNA score < 24).

The mean age (standard deviation) of the participants was 82.0 (4.5) years, and 70.2% ($n = 402$) of participants were women. A risk of malnutrition or malnutrition was identified in 33% of participants ($n = 189$), and three-quarters of participants were women. People with a risk of malnutrition were older, had a lower body-mass index and lower MMSE scores, higher comorbidity scores (i.e., FCI). They more often lived alone, had feelings of loneliness, and had fewer contacts with close friends (Table 1). In the multivariate analysis, subjective loneliness [OR, 1.63; 95% confidence interval (CI), 1.09–2.45] and low MMSE scores (OR, 1.18; 95% CI, 1.14–1.23) were associated with risk of malnutrition/malnutrition (Table 2).

A new finding was that subjective feelings of loneliness were associated with a risk of malnutrition/malnutrition. Feelings of loneliness may affect appetite and the intake of nutrients through a decline in mood, declining physical functioning, or declining cognition⁴. A decline in cognitive functioning was also associated with malnutrition or a risk of malnutrition in our study. Cognitive impairment causes an inability to shop and prepare meals, and later with increased cognitive impairment, a person can forget to eat.

* Conflicts of interest: All contributing authors declare that they have no conflicts of interest.

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Table 1
The participants' characteristics and social activity by their MNA categorization.

	Well-nourished MNA score ≥ 24 , <i>n</i> = 384	Risk of malnutrition/malnutrition, MNA score ≤ 23.5 <i>n</i> = 189	<i>p</i>
Women, <i>n</i> (%)	258 (67.2)	144 (76.2)	0.027
Age (y), mean (SD)	81.6 (4.0)	83.3 (5.2)	<0.001
BMI, mean (SD)	27.2 (4.2)	26.0 (5.0)	0.002
MMSE, mean (SD)	27.1 (3.4)	23.5 (6.3)	<0.001
FCL, mean (SD)	2.4 (1.6)	3.4 (1.9)	<0.001
Coronary artery disease	163 (42.9)	103 (54.5)	0.009
Diabetes	63 (16.4)	46 (24.3)	0.024
Chronic asthma/COPD	30 (7.8)	28 (14.8)	0.009
Self-rated health, <i>n</i> (%)			
Good	229 (59.8)	59 (31.4)	<0.001
Moderate	128 (33.4)	83 (44.1)	
Poor	26 (6.8)	46 (24.5)	
Living alone, <i>n</i> (%)	200 (52.5)	119 (65.0)	0.005
Subjective loneliness			
Frequency of feeling lonely, <i>n</i> (%)			
Often/sometimes	104 (27.2)	81 (43.8)	<0.001
Never	279 (72.8)	104 (56.2)	
Objective poor social network			
Frequency of meeting close friends, <i>n</i> (%)			
Several times a week	276 (72.1)	103 (54.8)	<0.001
Several times a month	93 (24.3)	73 (38.8)	
Once a month or less frequent	14 (3.7)	12 (6.4)	
Frequency of talking with close friends, <i>n</i> (%)			
Several times a week	313 (82.8)	137 (75.3)	0.014
Several times a month	57 (15.1)	33 (18.1)	
Once a month or less frequent	8 (2.1)	12 (6.6)	

BMI = body mass index; COPD = chronic obstructive pulmonary disease; FCI = Functional Comorbidity Index; MMSE = Mini-Mental State Examination; MNA = Mini Nutritional Assessment; SD = standard deviation.

Nutritional factors may possess protective properties against cognitive decline. However, few randomized clinical trials have been designed to test for the role of nutrition in cognitive decline, based on epidemiological studies. Johari et al⁵ report that nutritional and lifestyle education for older people with mild cognitive impairment improved their nutritional and cognitive status, although the evidence of efficacy was limited.

Living alone was not a risk factor for malnutrition or a risk of malnutrition in the multivariate model. This finding is contradictory to an earlier study that found that people living alone were more likely to be at nutritional risk⁶. It is reasonable to suggest that older people living alone eat more poorly and feel worse, which affects their daily life by lessening their social activities and increasing their feeling of helplessness⁷. To prevent malnutrition, especially among older people, eating meals should be a social event.

Table 2
Univariate and multivariate associations between the patient's characteristics and MNA scores of ≤ 23.5 .

Variable	Univariate OR (95% CI)	Multivariate ^a OR (95% CI)
Sex (female)	1.56 (1.05–2.32)	
Age (y)	1.09 (1.05–1.13)	
MMSE	1.20 (1.15–1.24)	1.18 (1.14–1.23)
Living alone	1.68 (1.17–2.42)	
Subjective loneliness		
Feelings of loneliness	2.09 (1.45–3.02)	1.63 (1.09–2.45)
Poor social network		
Meeting close friends	1.80 (1.34–2.43)	
Talking on the phone with close friends	1.58 (1.12–2.21)	

CI = confidence interval; MMSE = Mini-Mental State Examination; MNA = Mini Nutritional Assessment; OR = odds ratio.

^a Forward selection. Only variables that were entered into the model are shown.

Loneliness among community-dwelling older people is an issue that should be acknowledged more often. It is good to remember that socially isolated persons are not necessarily lonely, and lonely persons are not necessarily socially isolated in an objective sense⁸. Davis et al⁹ found that in terms of nutrient intake living with a spouse was best, and living with people other than one's spouse was worse than living alone. Loss of a spouse through death or divorce may result in grief, loneliness, a loss of social support, less social participation, etc., all of which may affect nutritional status¹⁰.

One strength of the present study was its population-based design and the cohort recruited by random sampling. The participants underwent comprehensive interviews and assessments, and the study was designed and the data were collected by a multi-professional research team. Furthermore, all nutritional screens with the MNA and all the interviews were performed by the same two nurses. We concluded that feelings of loneliness and cognitive impairment were associated with a risk of malnutrition/malnutrition.

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